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PREVENTION AND PROTECTION START HERE

NMCPHC Workplace Health Risk Assessment, Calendar Year 2018

The EpiData Center
Prepared March 2019

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Executive Summary

The Navy and Marine Corps Public Health Center (NMCPHC) Workplace Health Risk Assessment (HRA) is a brief, anonymous, 21-question, optional tool for military members and general schedule (GS) civilians which measures lifestyle behaviors that are most commonly associated with adverse health outcomes. Users are asked to select their workplace from a searchable database within the tool. The tool is web-based, but there is also a stand-alone Microsoft Access-based version that is used on ships with poor Internet connectivity. The user is scored as healthy or unhealthy for each of the questions and a user is scored as high, medium, or low risk based on the number of unhealthy behaviors reported. A “high risk” score may indicate the user is likely to be a high consumer of healthcare services. Persons who complete the HRA receive a printable Participant's Report which highlights health risks, provides credible web-based sources of health information, and encourages and empowers the user to better manage their personal health. The HRA is not intended to replace consultation with a health care provider.

Prior to 2017, many Navy, Marine Corps and Coast Guard commands required members to complete the HRA as part of their annual, mandatory, Periodic Health Assessment (PHA). However, the new, on-line PHA software, launched on 01 July 2017, has its own built-in HRA-type questions so the NMCPHC Workplace HRA became entirely optional. This is a likely explanation for the observed reduction in the number of HRA records over the last three years: 2018 (107,075), 2017 (201,968), 2016 (210,156). There are three key differences between the HRA and PHA: (1) the PHA questions differ somewhat from the NMCPHC Workplace HRA and are, in some cases, more clinical; (2) the PHA is not anonymous and is part of the member's medical record; (3) PHA data does not include the members workplace identifier and the PHA data cannot be retrieved for workplace health risk analyses. Therefore, the HRA remains the only tool available to workplaces to understand health risk behaviors. The HRA remains the basis of HRA-related scoring for the Blue H - Navy Surgeon General's Health Promotion and Wellness Award, and it is the Blue H that is most likely to drive future use of the NMCPHC Workplace HRA.

This annual report describes the overall results of the total responses as well as by service component and specific characteristics. Demographic variables that were examined included age, sex, race, rank, and service component. Analyses utilized one of two measures: 1) ‘healthy’ or ‘unhealthy’ risk ratings or 2) a risk score based on the total number of risk behaviors reported by an individual.

In 2107, new tobacco questions were added, which are revealed to the HRA user only if they indicated they currently use or have ever used tobacco products. The new tobacco questions explore a wider range of nicotine delivery products and also capture recent tobacco-quit numbers and motivation for quitting.



A total of 101,565 assessments of active duty and reserve members from the United States Navy (USN), USN Reserves (USNR), United States Marine Corps (USMC), USMC Reserves (USMCR), United States Coast Guard (USCG), and USCG Reserves (USCGR) completed from 01 January to 31 December 2018 were analyzed.

The prevalence of specific risk factors remained fairly constant from the previous year, with the following leading health risks: consumption of high fat foods, low fruit and vegetable consumption, not flossing, and not getting enough restful sleep. The mean number of risk factors showed that more USMC members qualified as “high risk” (33.7%), followed by the USN (30.2%), USMCR (28.1%), USNR (13.8%), USCG (11.3%), and USCGR (6.6%). The data also indicated that, in general, Navy and Coast Guard service members were more likely to be classified as overweight or obese than Marines.

Background

Health Risk Assessments (HRAs) became widely used in both military and civilian settings beginning in the mid-1980s. HRAs are tools that can be used to educate patients, to assist healthcare professionals in counseling patients, and to inform decision makers on the overall health status of their populations. Different versions of HRAs are available to assess a range of conditions and risk behaviors. They are also often used to assess health concerns of specific age groups. The calendar year (CY) 2018 NMCPHC Workplace HRA is a 21-question, anonymous, self-reported, web-based assessment tool specifically designed to assess risk behaviors common to military members.

The questions were based on other validated tools, such as the Alcohol Use Disorders Identification Test (AUDIT), the DOD Survey of Health Related Behaviors among Military Personnel, the National Health and Nutrition Examination Survey (NHANES), and input from subject matter experts. The questions address 10 risk categories that provide a snapshot of leading health indicators. The categories include: tobacco use, alcohol use, safety, stress management, sexual health, physical activity, nutrition, supplement use, dental health, and sleep problems.

More information on the HRA can be found at: <http://www.med.navy.mil/sites/nmcphc/health-promotion/Pages/hra.aspx>.



Methods

Data Collection and Analyses

107,075 HRA assessments were completed, and the data were analyzed by the EpiData Center (EDC) at the NMCPHC. Surveys were excluded from the analysis for the following reasons:

- a. If they were completed before 01 January or after December 31 (n=175)
- b. If they were completed by GS civilian or contractor personnel (n=3,237)
- c. If they were completed by Army, Air Force, or other DOD service members (n=200)
- d. If they were not fully completed (n=532)
- e. If they contained weight values less than 84 lbs. or greater than 271 lbs.; or height values less than 4'8" or greater than 7'2" (n=1,366)

After excluding these 5,510 surveys, the total number of surveys included in the analysis was 101,565.

Descriptive analyses, frequencies, and percentages were used to describe survey respondents. The following demographic variables were collected: age, sex, race, rank and service. Service member age was categorized into the following groups: 17-19, 20-29, 30-39, 40-49, and 50 years and older. Race was categorized as Caucasian, African American, Asian and Pacific Islander, Hispanic, or Other. Rank was categorized into three categories each for enlisted service members (E1-E3, E4-E6, or E7-E9) and officers (O1-O3, O4-O6, or O7-O9), and five categories for warrant officer (W1, W2, W3, W4, or W5).

Body mass index (BMI) was calculated from self-reported height and weight data, according to current Centers for Disease Control and Prevention (CDC) guidelines ($[\text{weight in pounds} \div (\text{height in inches})^2] \times 703$).¹ According to the CDC, BMI values that exceed healthy levels have been shown to be an independent risk factor for certain diseases and all-cause mortality.

Risk behaviors were also classified into one of two measures: 1) 'healthy' or 'unhealthy' risk ratings on 10 categories (see Appendix B) or 2) a risk score.

A risk score was tabulated based on the total number of risk behaviors. Risk behavior scores ranged from 0-10 and were categorized into risk levels low, medium, and high.

0-2 risk behaviors = low risk

3-4 risk behaviors = medium risk

5 or more risk behaviors = high risk



Risk scores do not predict early morbidity or mortality; rather, higher risk scores indicate a greater likelihood that members will utilize more healthcare services in the future than lower risk members.

A risk score greater than two (i.e., medium and high categories) was set as the dependent variable for analyses of risk and days away from home station. Days away from home station was used as the predictive variable, and divided into four groups: 0 days away from home station, 1-29 days away from home station, 30-179 days away from home station, and 180-365 days away from home station.

Responses to questions about tobacco use, drinks per day, heavy drinking, life satisfaction, personal support, sleep, and work stress were also examined over the four time periods away from home station. These seven questions were examined to determine any time-related differences in reporting of unhealthy behaviors.



Results

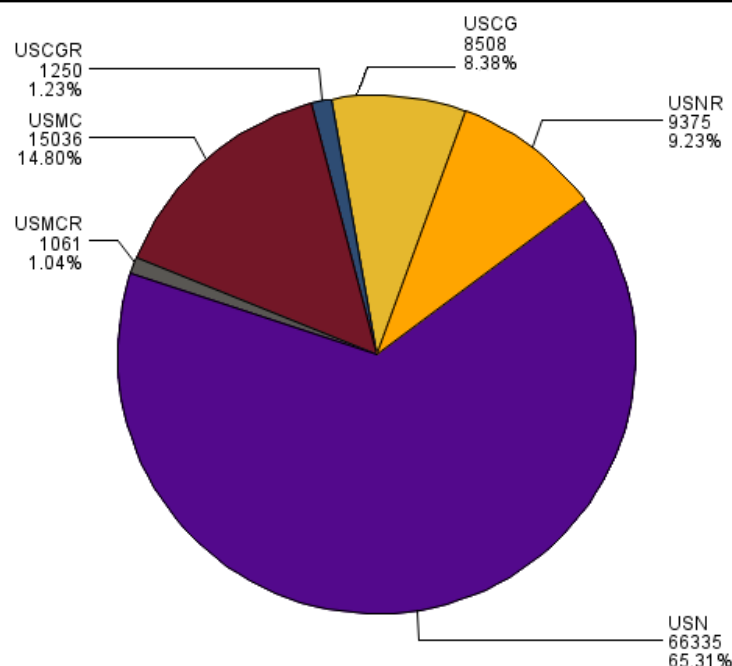
101,565 surveys were analyzed. Demographic results and the HRA risk factor analysis are found below, with risk factor analysis including information on: BMI status, distribution of “healthy” responses, distribution of risk categories, change in healthy responses, perception of health, mean risk by demographic variables, days away from home station, days away from home station and risk score, and days away from home station and unhealthy behaviors.

Demographic Results

The majority of survey respondents (65.3%) were active duty Navy service members (USN), while 9.2% were Navy Reserves (USNR), 14.8% and 1.0% were active duty and reserve Marines (USMC and USMCR, respectively), and 8.4% and 1.2% were active duty and reserve Coast Guard members (USCG and USCGR, respectively) (Figure 1).

Figure 1:

Distribution of Completed HRAs by Service Component
101,565 Records



Data Source: 2018 HRA

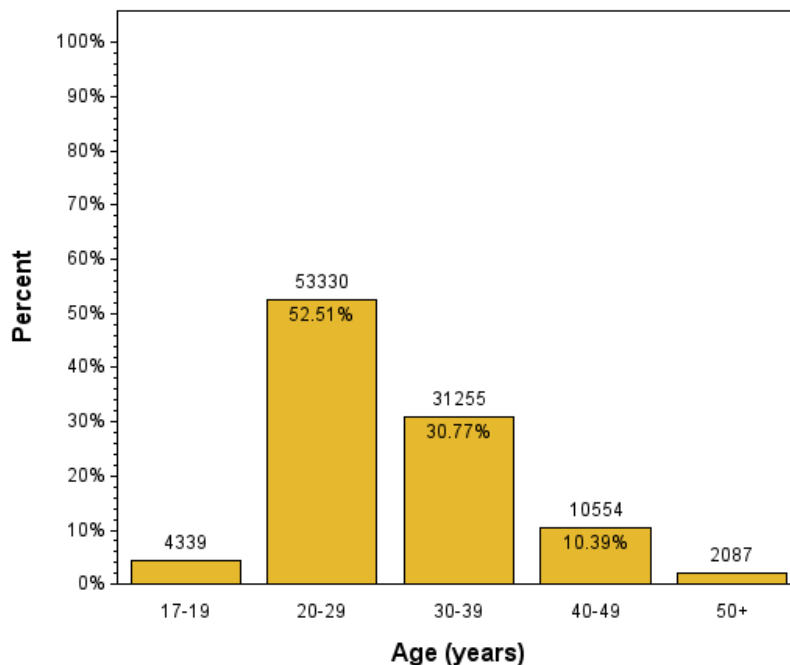
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Age distribution of survey respondents indicated more than half (52.5%) of the respondents were in the 20-29 year old age group (Figure 2).

Figure 2:

Age Distribution of Completed HRA Survey
101,565 Records



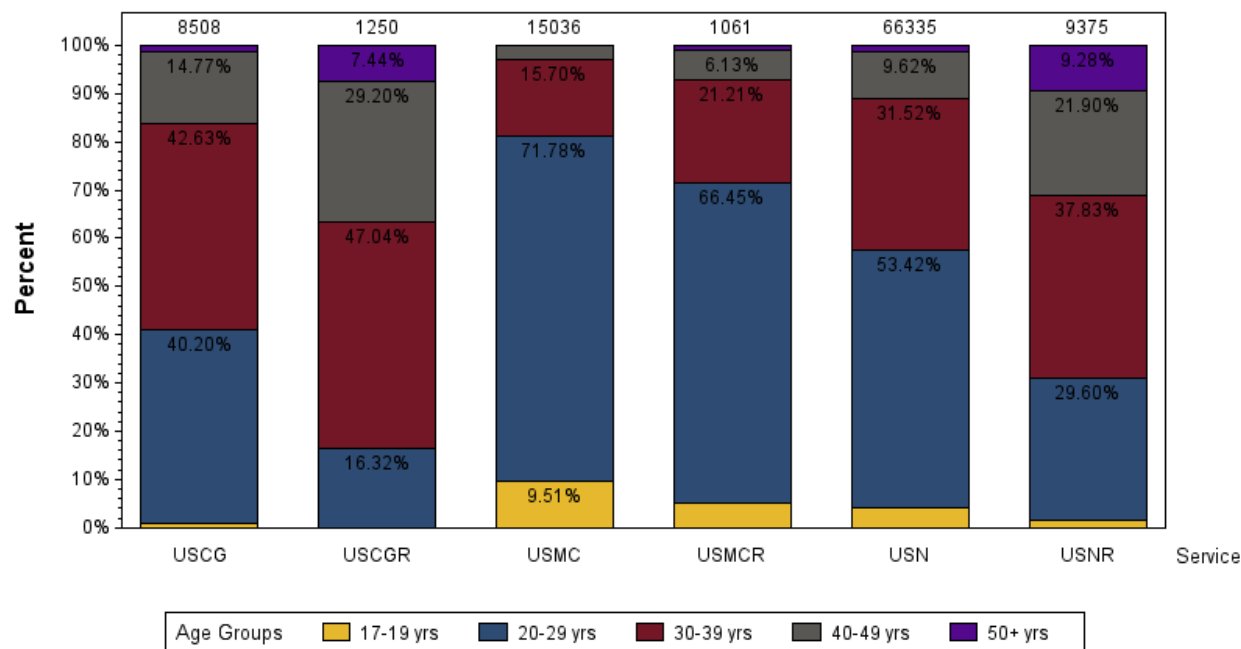
Data Source: 2018 HRA
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Overall, Navy and Coast Guard service member respondents were older than the Marine survey respondents (Figure 3). The mean age of service member respondents was 29.4 years of age (USN), 35.3 years of age (USNR), 24.8 years of age (USMC), 27.2 years of age (USMCR), 32.1 years of age (USCG), and 37.4 years of age (USCGR).

Figure 3:

Age Distribution of Completed HRAs by Service Component
 101,565 Records



Data Source: 2018 HRA

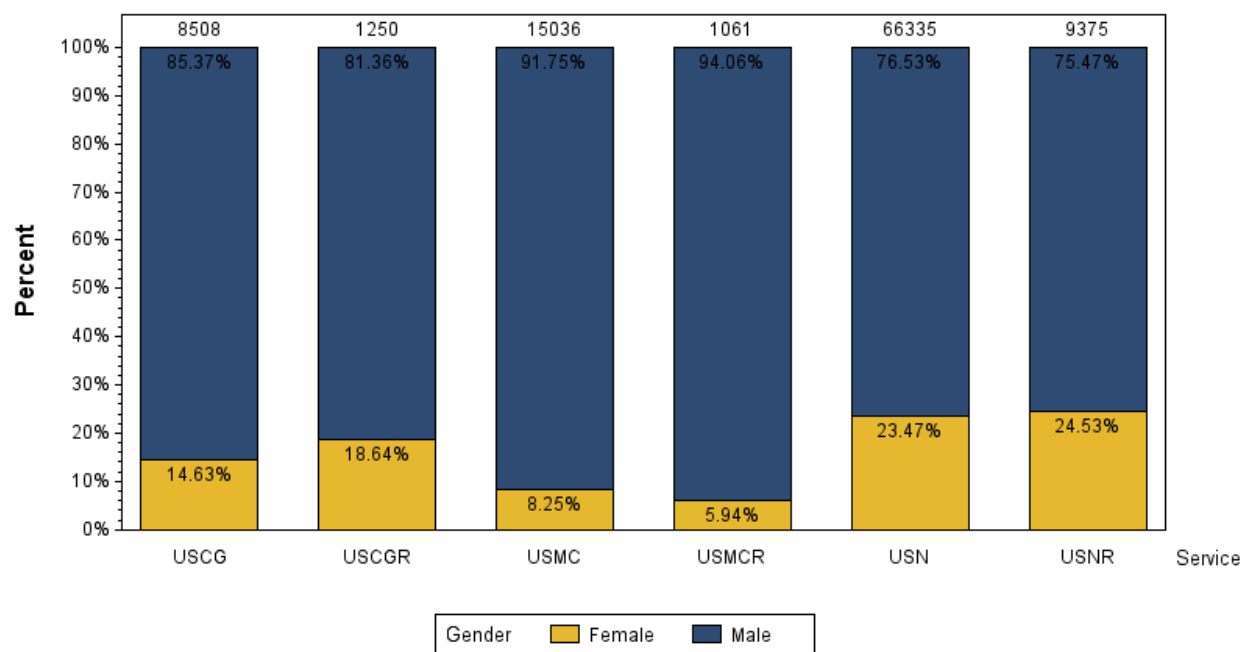
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



With respect to sex, more males completed the HRA (79.7%), which reflects the general male-to-female ratio of military service members. The sex difference was most evident in the USMC and USMCR, with 8.3% and 5.9% of the HRAs completed by female Marines, respectively, compared to 23.5% and 24.5% in the USN and USNR, respectively, and 14.6% and 18.6% in the USCG and USCGR, respectively.

Figure 4:

Gender Distribution of Completed HRAs by Service Component
 101,565 Records



Data Source: 2018 HRA

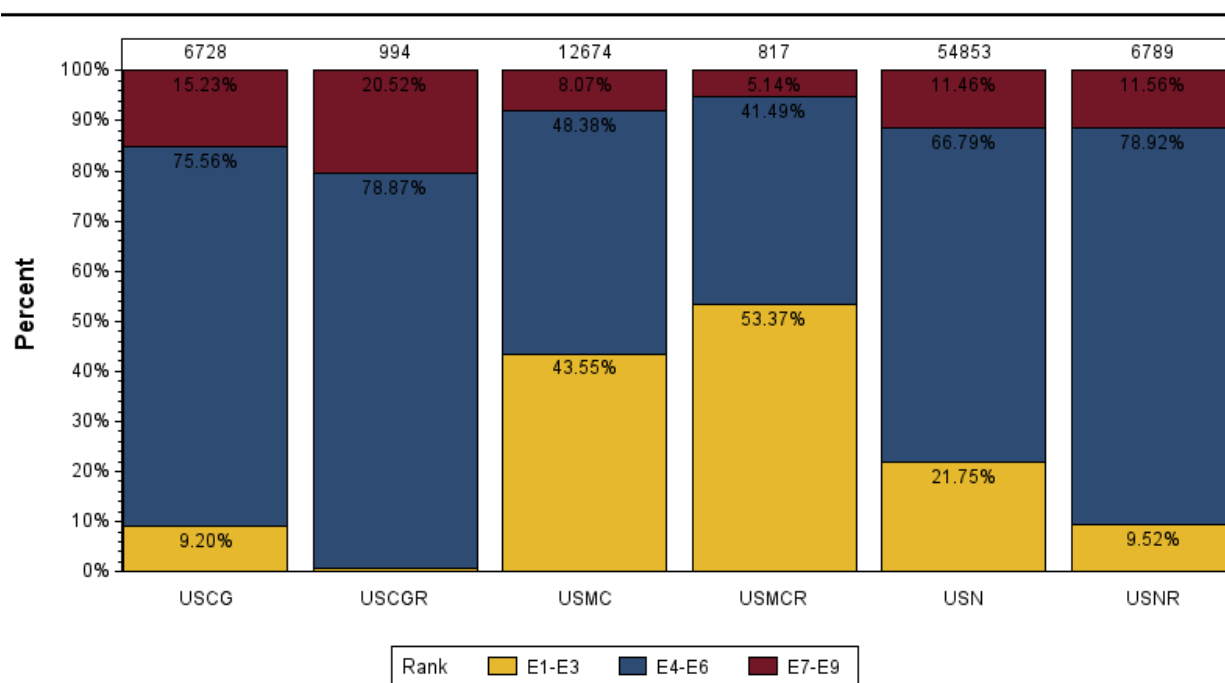
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Rank distribution of HRA survey respondents indicated that 81.6% were completed by enlisted members, 17.5% by officers, and 1% by warrant officers. Figures 5-7 display the distribution of respondents' rank by service.

The USMC and USMCR had the largest percentage of E1-E3 enlisted members (43.6% and 53.4%, respectively). The USCG (75.6% E4-E6 and 15.2% E7-E9) and USCGR (78.9% E4-E6 and 20.5% E7-E9) had the largest percentage of senior-ranking enlisted members.

Figure 5:
Rank (All Personnel) Distribution of Completed HRAs by Service Component
 82,855 Records

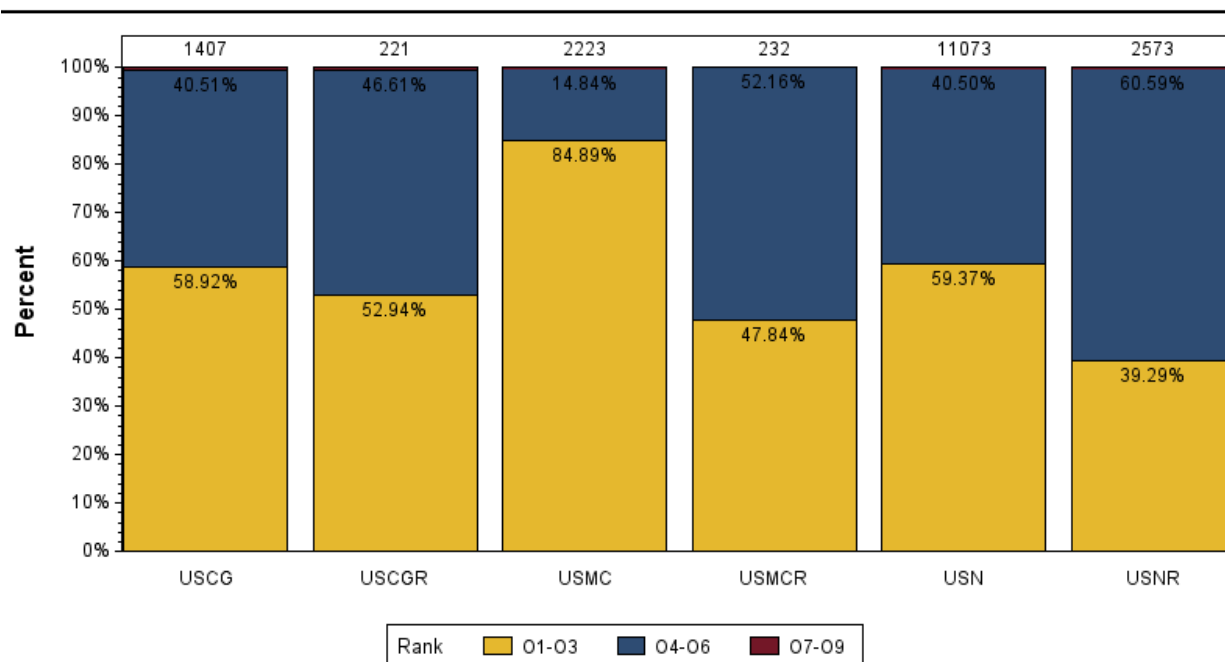


Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Among service members who completed the HRA, the USNR had the highest percentage of officers in the O4-O6 range (60.6%) of all reserve components while the USN and USCG tied for the highest percentage among all active duty components (40.5%). The USMC had the highest percentage of officers in the O1-O3 range (84.9%) who completed the HRA among active duty components, whereas the USCGR had the highest percentage among reserve components (52.9%) (Figure 6).

Figure 6:
Rank (Officer Personnel) Distribution of Completed HRAs by Service Component*
 17,729 Records

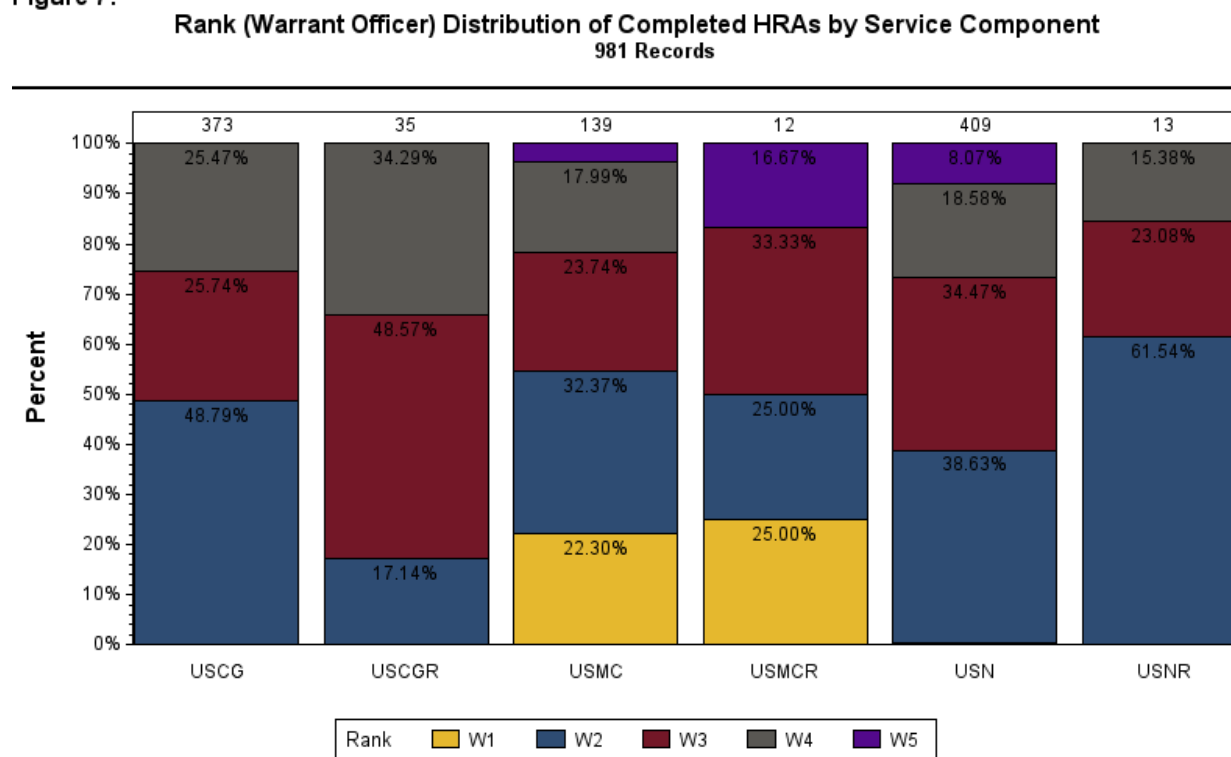


*There were no 2018 HRA surveys completed by a service member who indicated a rank of O10.
 Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



The USMCR had the highest percentage of warrant officers in the W5 category (16.7%). The USCGR had the highest percentage of respondents in the W4 category (34.3%) and the W3 category who completed the HRA questionnaire (48.6%) (Figure 7).

Figure 7:



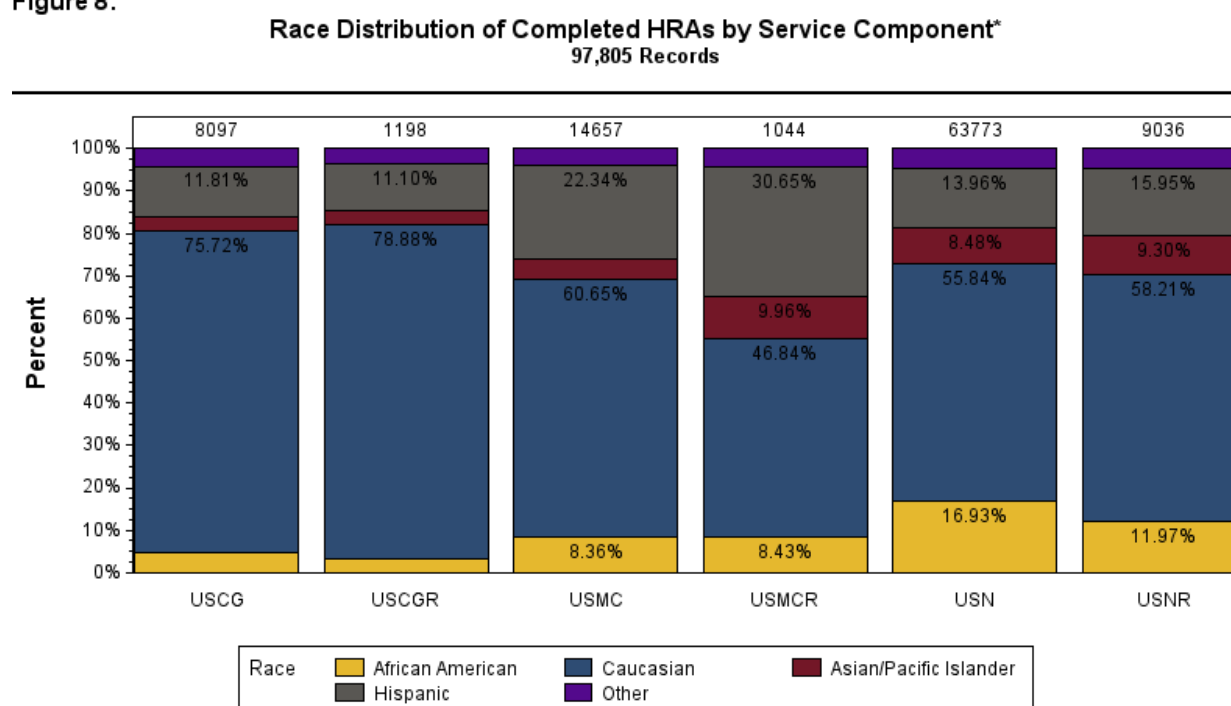
Data Source: 2018 HRA

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Across services, survey respondents were predominantly Caucasian. USCG and USCGR had the highest proportion (75.7% and 78.9%, respectively) of Caucasian respondents. The most prominent percentages of Asian/Pacific Islanders were reported among USMCR and USNR service members (10.0% and 9.3%, respectively). The largest percentage of Hispanics who completed the survey was among USMCR service members (30.7%), whereas the largest percentage of African Americans was among USN service members (16.9%) (Figure 8). This question also included the option for respondents to select “prefer not to answer,” 3,825 (3.8%) of HRA respondents chose this option, which is represented by the asterisk in the title and noted in the footnote.

Figure 8:



*'Other' classification includes responses of American Indian, Native Alaskan, and Other

*3,825 chose 'Prefer not to answer' for race question

Data Source: 2018 HRA

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



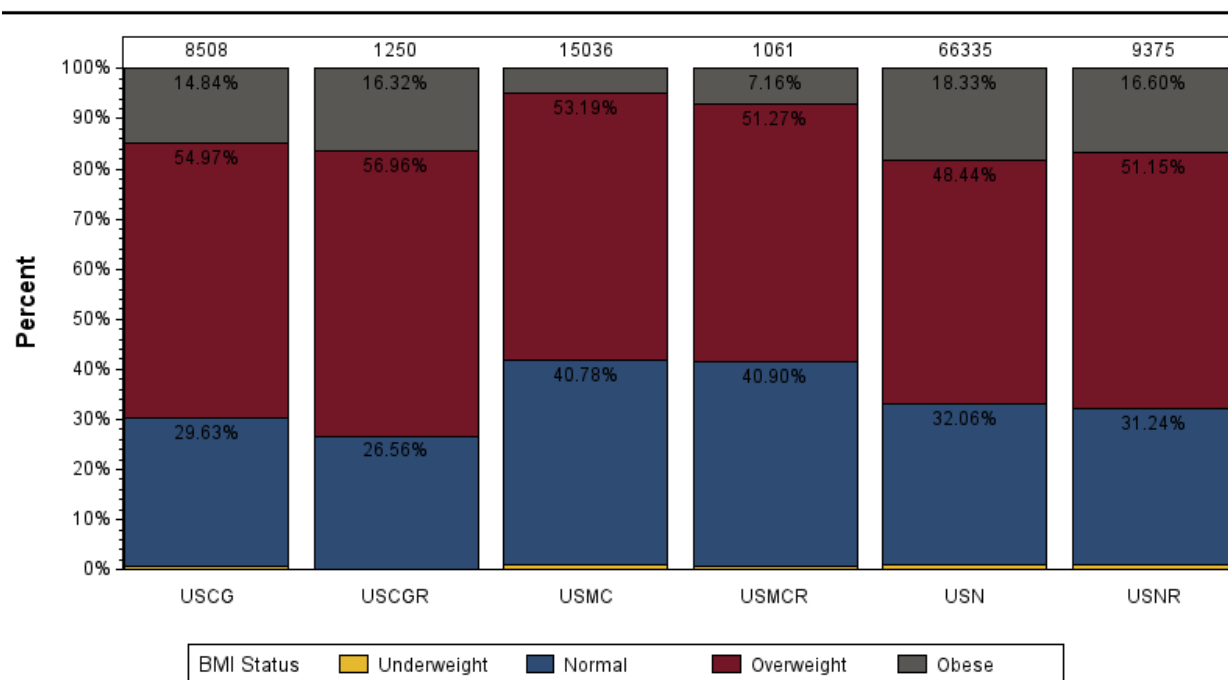
HRA Risk Factor Analysis

BMI Status

Overall, 65.8% of service members' reported heights and weights were classified as overweight or obese, according to the Centers for Disease Control and Prevention BMI standards for healthy adults. The analysis indicated that, in general, USN, USNR, USCG, and USCGR service members were more likely than USMC and USMCGR service members to be classified as overweight or obese. Among all service components, Active Duty and Reserves had similar BMI levels (Figure 9).

Figure 9:

Distribution of BMI Category for Completed HRAs by Service Component
 101,565 Records



Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019

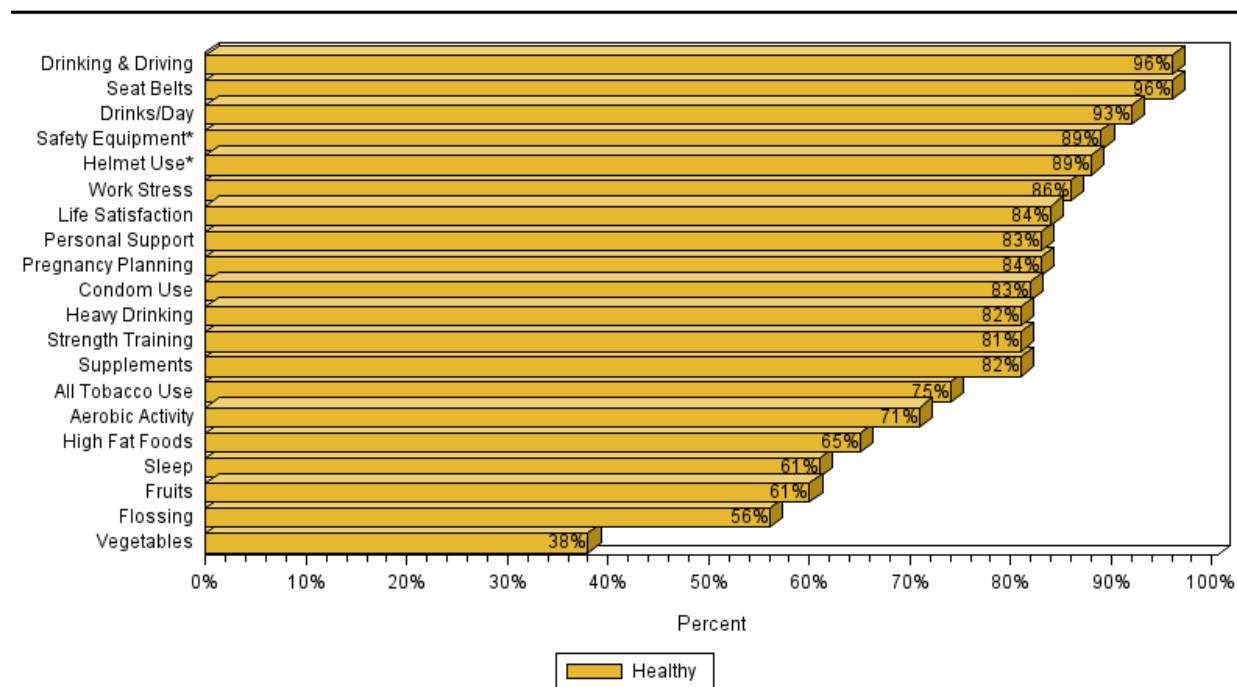


Distribution of “Healthy” Responses

As shown in Appendix B, each HRA question was classified as ‘healthy’ or ‘unhealthy’ based on responses to the question. Figures 10-16 show the percentages of healthy responses by service component. Questions about helmet use and the use of safety equipment included a “not applicable/does not apply to me” answer; those were excluded from the analysis for figures 10-16. This was done to give a more complete picture of healthy behavior among those at risk.

The behaviors with the lowest percentages of healthy responses among respondents were daily intake of vegetables (38%), flossing (56%), daily intake of fruits (61%), and sleep (61%). Other areas of concern included intake of high fat foods (65%), aerobic activity (71%) and tobacco use (75%). Overall, the most common healthy behaviors reported by members included avoiding drinking and driving (96%), seat belt use (96%), and consuming fewer than four alcoholic drinks on any day for men, or three drinks for women (93%) (Figure 10).

Figure 10:
Distribution of Healthy Responses on HRA Questions for All Service Components



*Excludes non applicable answers

Data Source: 2018 HRA

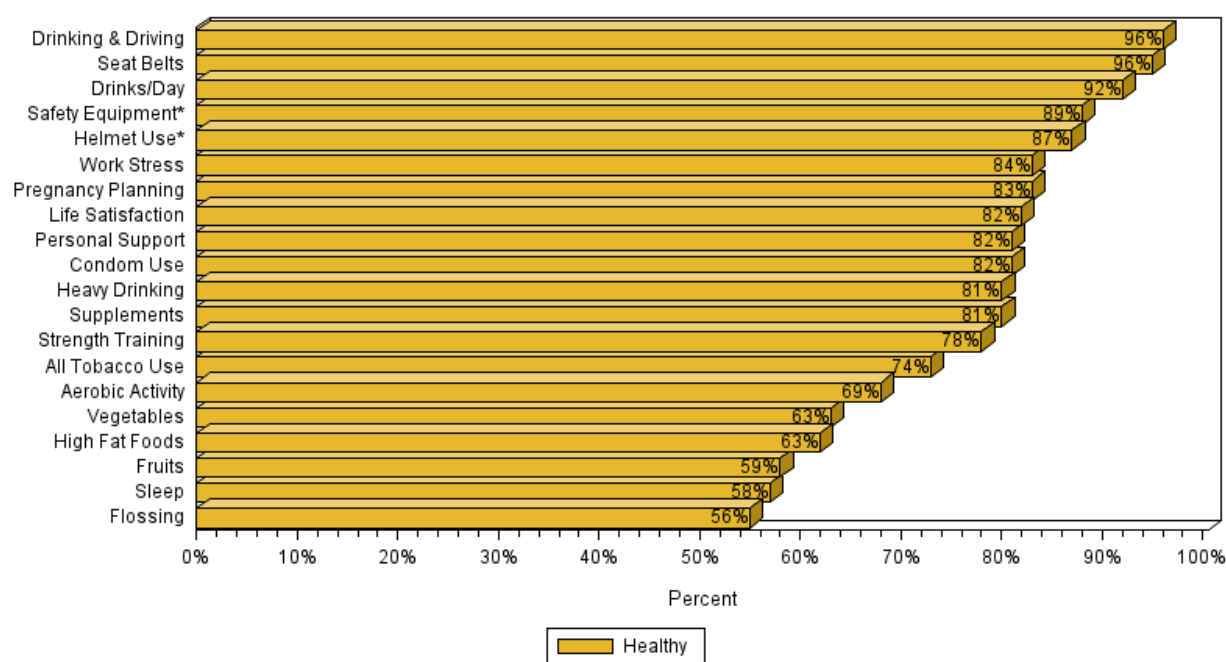
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



USN and USNR response distributions closely resembled one another (Figures 11 & 12). In addition, a larger proportion of USNR members reported healthy flossing behaviors (64%) than USN members (56%). A larger proportion of USNR members also reported eating fatty foods rarely or once per week (75%) compared to USN members (63%). The majority of USN and USNR service members (89% and 93%, respectively) reported using safety equipment, as well as never drinking and driving (reported by 96% of USN and 97% of USNR service members). USNR members reported a higher percentage of no tobacco use (86%) than did USN members (74%).

Figure 11:

USN Distribution of Healthy Responses on HRA Questions



*Excludes non applicable answers

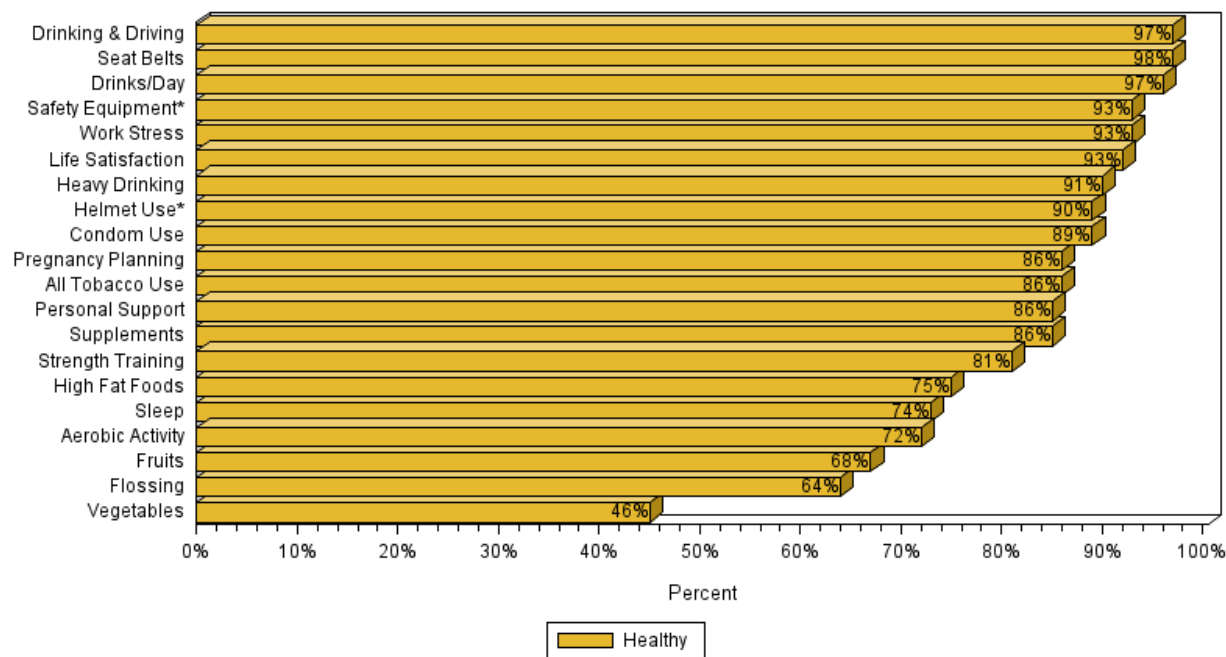
Data Source: 2018 HRA

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Figure 12:

USNR Distribution of Healthy Responses on HRA Questions



*Excludes non applicable answers

Data Source: 2018 HRA

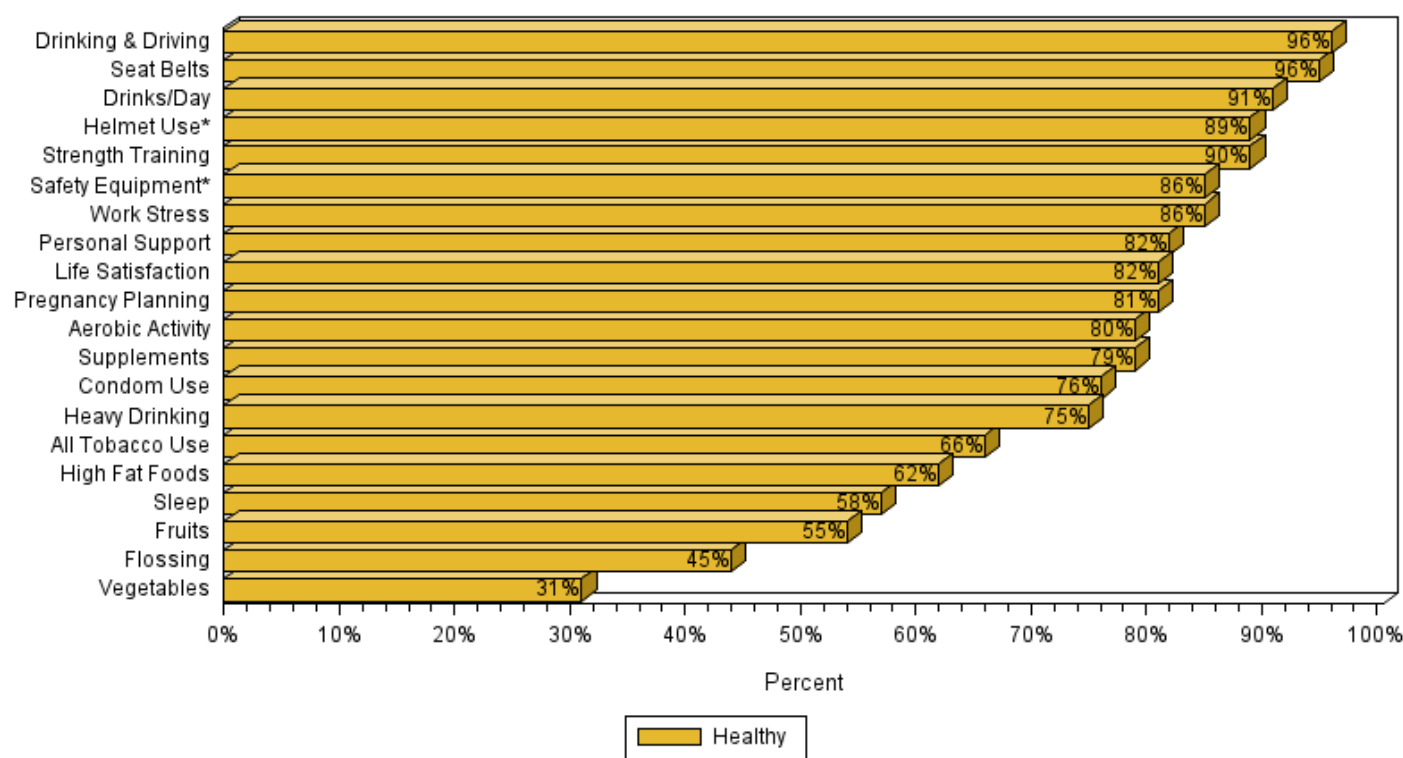
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



The USMC and USMCR reported similar proportions of risky behaviors (Figures 13 & 14). The highest healthy responses among USMC and USMCR HRA respondents were for abstaining from drinking and driving (96% and 94%, respectively), seat belt use (96% for both), and consuming fewer than four alcoholic drinks on any day for men, or three drinks for women (91% and 93%, respectively). The lowest reported healthy behaviors were for daily intake of vegetables, (31% and 30%, respectively), flossing (45% for both), intake of fruits (55% and 54%, respectively), sleep (58%), and healthy intake of high fat foods (62% and 64%, respectively).

Figure 13:

USMC Distribution of Healthy Responses on HRA Questions



*Excludes non applicable answers

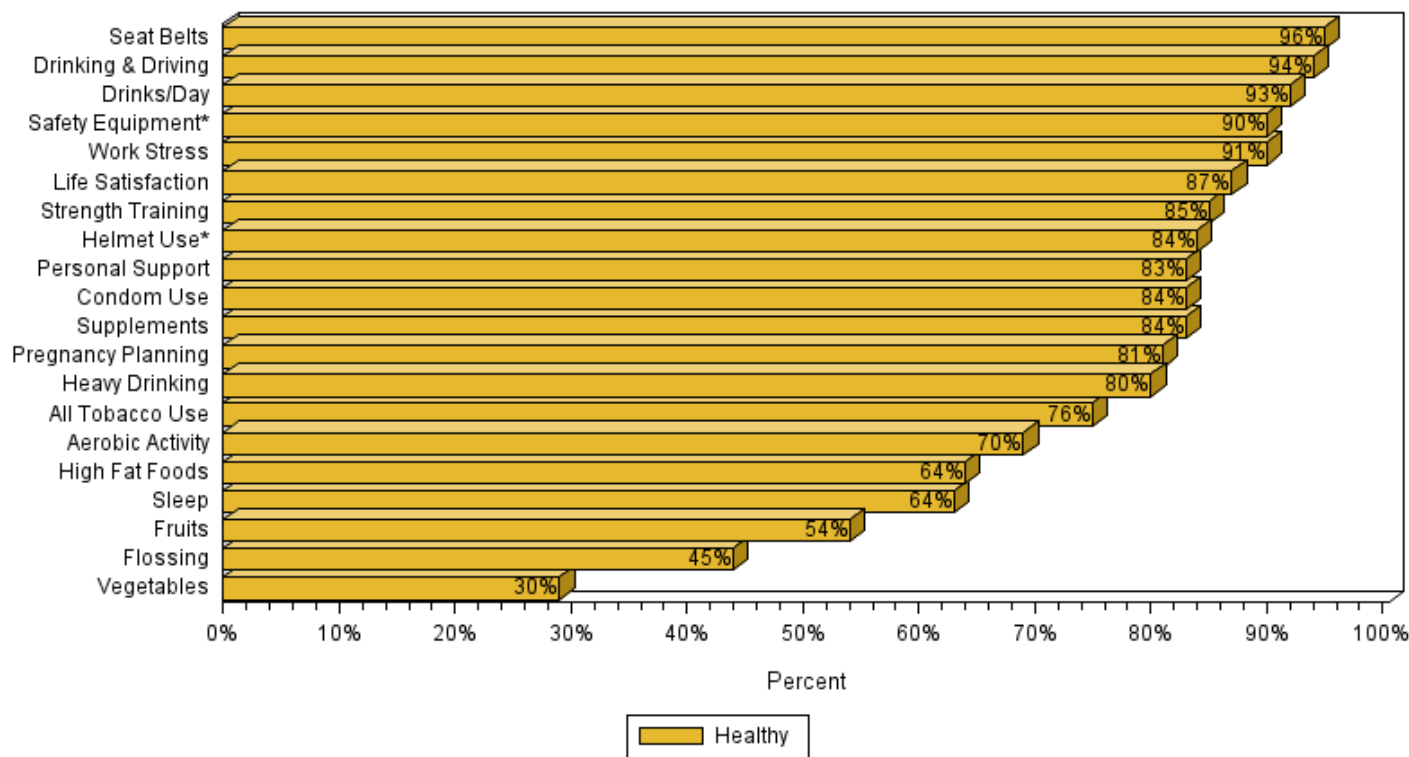
Data Source: 2018 HRA

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Figure 14:

USMCR Distribution of Healthy Responses on HRA Questions



*Excludes non applicable answers

Data Source: 2018 HRA

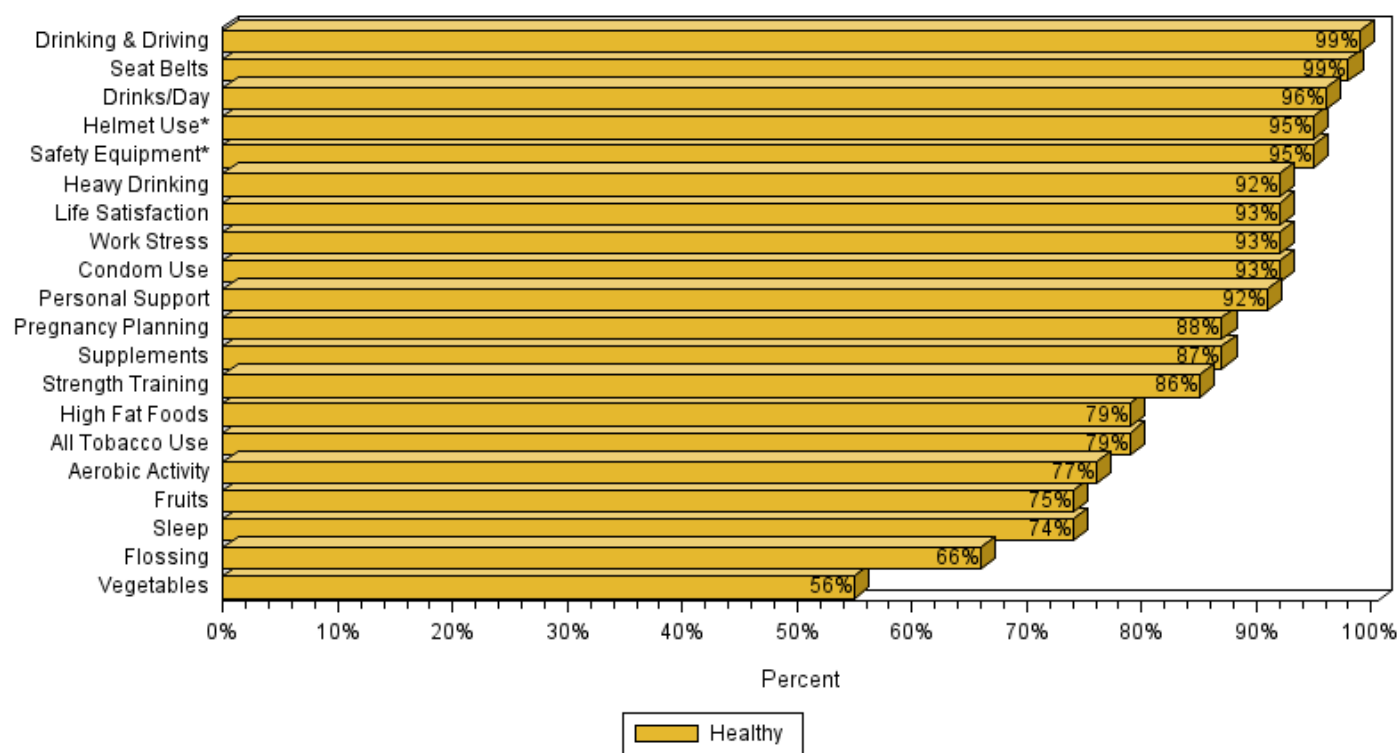
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The USCG and USCGR showed similar results of healthy behaviors (Figures 15 & 16). The lowest healthy responses for both groups were reported vegetable consumption (56% for USCG and 59% for USCGR), and flossing (66% and 74%, respectively). USCG and USCGR members reported extremely high percentages of the following healthy behaviors: seat belt use, (99% and 98% respectively), avoiding drinking and driving (99% and 98% respectively), and consuming fewer than four alcoholic drinks on any day for men, or three drinks for women (96% and 97%, respectively).

Figure 15:

USCG Distribution of Healthy Responses on HRA Questions



*Excludes non applicable answers

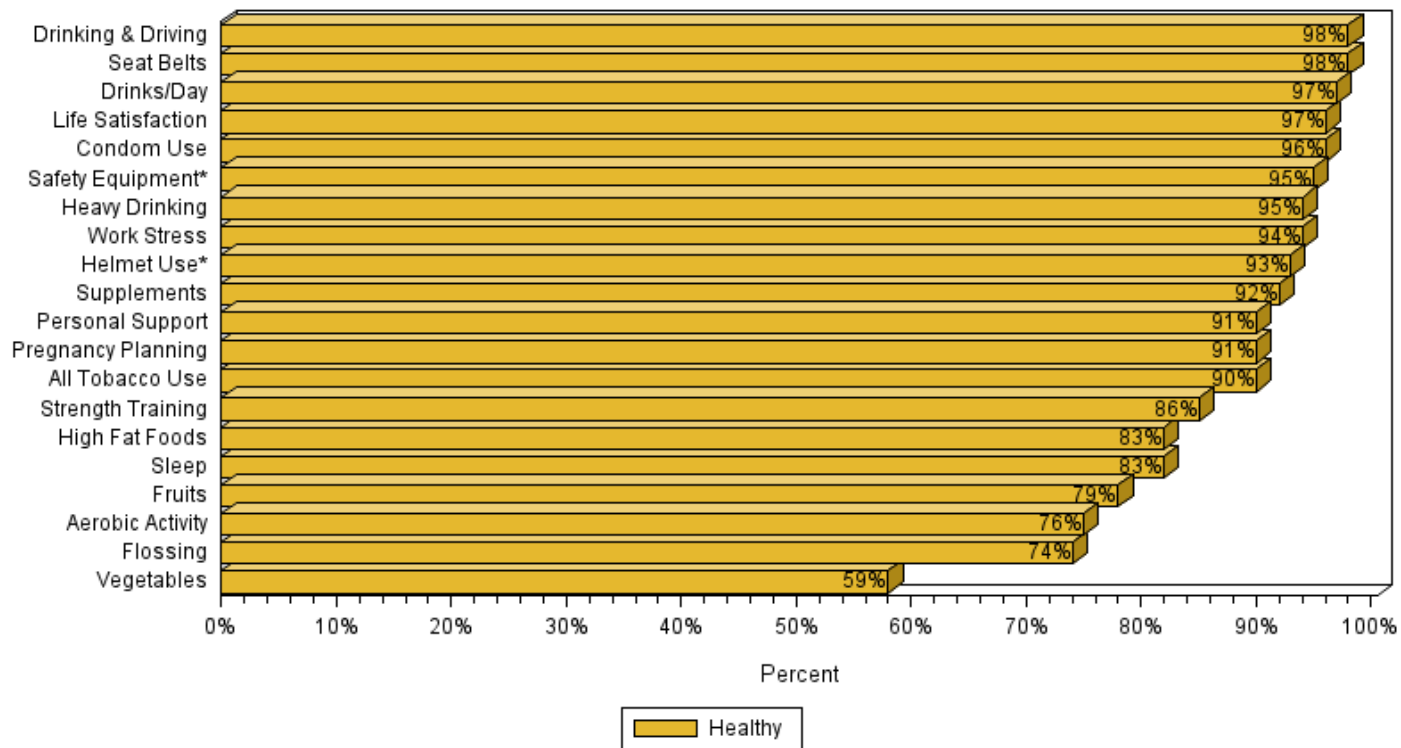
Data Source: 2018 HRA

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Figure 16:

USCGR Distribution of Healthy Responses on HRA Questions



*Excludes non applicable answers

Data Source: 2018 HRA

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



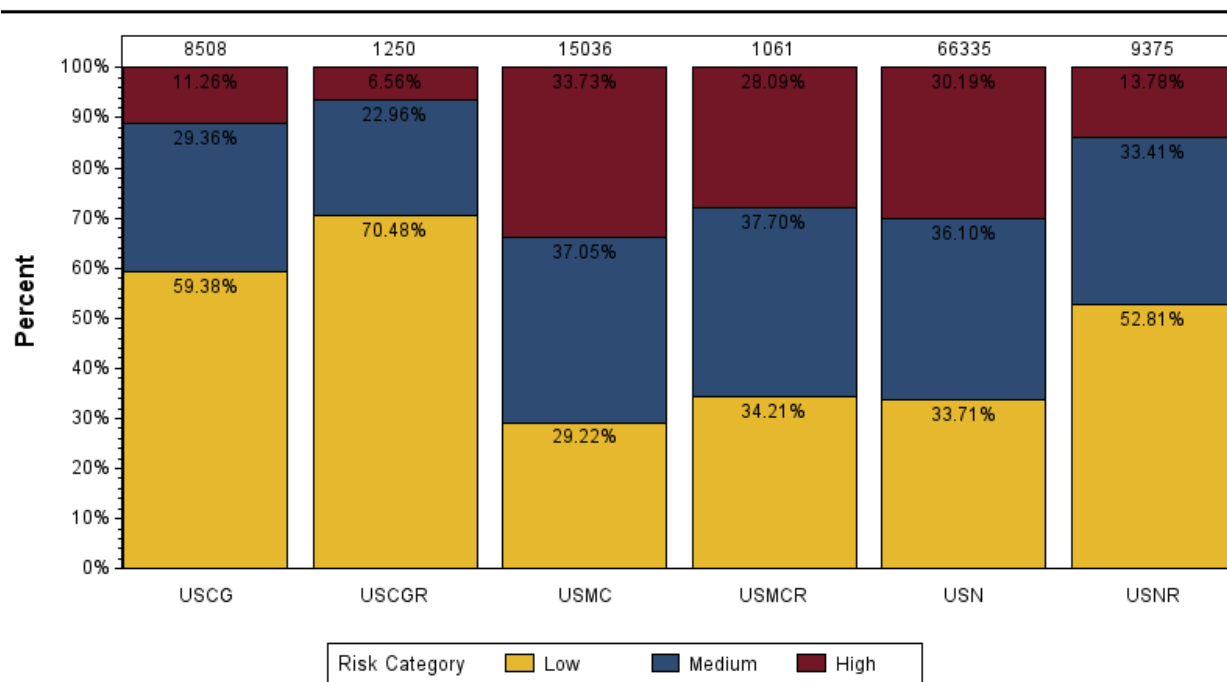
Distribution of Risk Categories

Figure 17 displays risk categories for each service component, based on the number of members falling within each risk category. Each service member was categorized as low, medium, or high risk based on the number of reported unhealthy responses. Members in higher risk categories are considered more likely to utilize healthcare services in the future.

Based on the mean number of risk factors, USMC members were most often scored as “high risk” (33.7%), followed by USN (30.2%), USMCR (28.1%), USNR (13.8%), USCG (11.3%), and USCGR (6.6%). Members of the USCGR were scored most often in the low risk category (70.5%).

Figure 17:

Distribution of Risk Categories for Completed HRAs by Service Component
 101,565 Records



Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Change in Healthy Responses

Table 1 displays the percent of respondents that were classified healthy for 2018 and the previous year, 2017. Percent change in the healthy response was calculated and appears in the last column; an increase in values indicates a greater proportion of healthy behaviors. Overall, high fat foods was the only healthy HRA response with a positive change at 4.5%. The consumption of vegetables, sleep, and consumption of fruits saw the greatest decrease in reported healthy behaviors (-7.5%, -6.2%, and -6.0%, respectively).



Table 1. Percent Change in Healthy HRA Responses, Total, CY 2018 HRA^a

Health Behavior	2017 (N=201,968)	2018 (N=102,931)	Percent Change
Aerobic Activity	74.6	71.3	-4.4
Tobacco Use ^c	76.5	74.5	-2.6
Condom Use	86.1	82.8	-3.8
Drinking & Driving	97.3	96.4	-0.9
Drinks/Day	94.7	92.9	-1.9
Flossing	58.3	56.0	-3.9
Fruits	64.6	60.7	-6.0
Heavy Drinking	84.5	81.9	-3.1
Helmet Use ^b	91.1	88.9	-2.4
High Fat Foods	62.6	65.4	4.5
Life Satisfaction	88.5	84.3	-4.7
Personal Support	87.2	83.2	-4.6
Pregnancy Planning	86.3	83.7	-3.0
Safety Equipment ^b	91.0	89.3	-1.9
Seat Belts	97.0	96.3	-0.7
Sleep	65.0	61.0	-6.2
Strength Training	83.1	81.1	-2.4
Supplements	83.3	81.8	-1.8
Vegetables	41.5	38.4	-7.5
Work Stress	89.2	86.0	-3.6

^a Percent Change calculation = [(2018 Value- 2017 Value)/ 2017 Value]*100

^a May not exactly total 100 due to rounding error.

^b Excludes non-applicable answers. 2017 was recalculated to match excluding non-applicable answers.

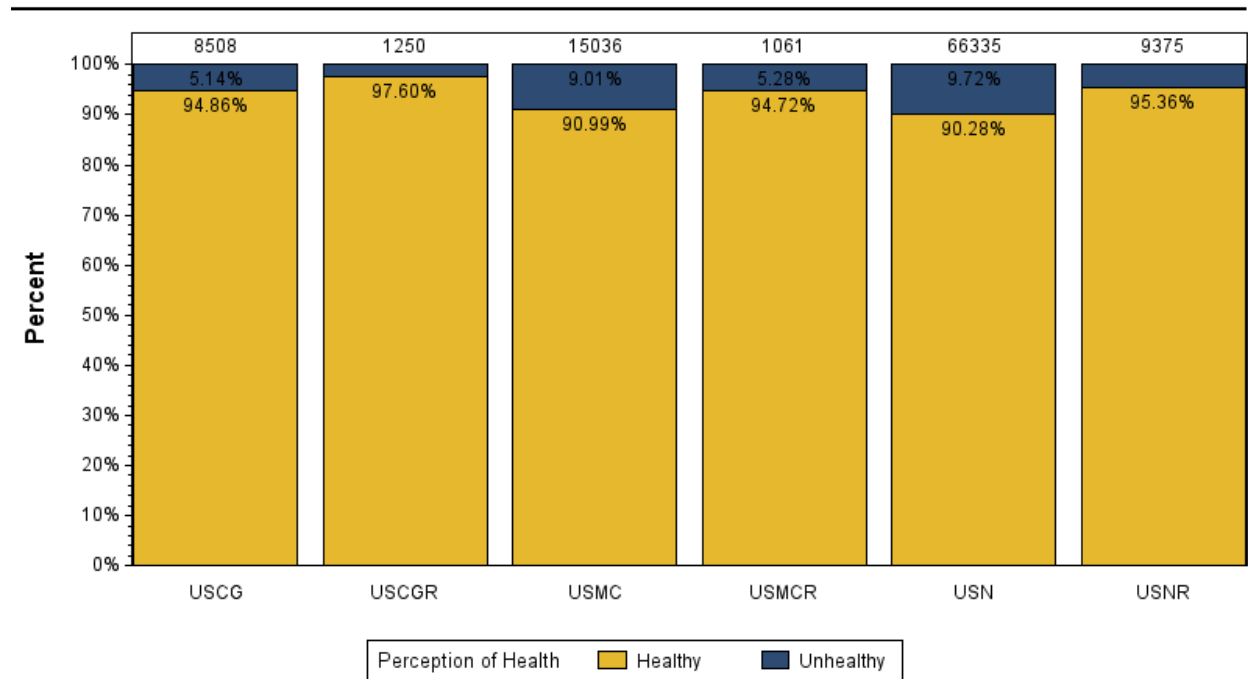
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019.



Perception of Health

Perception of current good health may not accurately reflect future health for members who report significant risk factors that are major determinants of health outcomes. Of all service members, 91.4% rated their “health in general” as either good or excellent (Figure 18), even though the self-reported scoring of HRA data shows many members reported risk factors that placed them in medium and high risk categories (Figure 17).

Figure 18:
Distribution of Perception of Health Category for Completed HRAs by Service Component
101,565 Records

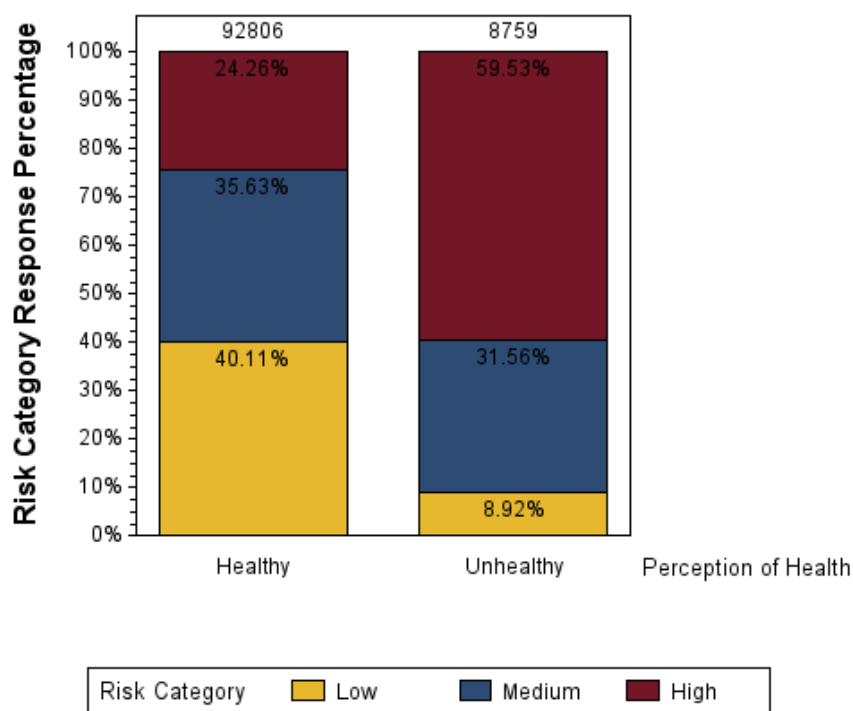


Data Source: 2018 HRA
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



The differences in perception of health and risk category demonstrated that those who perceived their health to be unhealthy (by rating that their health was either fair or poor), were more likely to be in the high risk category compared to those who perceived themselves to be “healthy”. Of the small percentage of respondents who indicated their health was generally unhealthy (8.6% of respondents), the majority had risk scores that fell into the medium to high risk categories (91.1%) (Figure 19).

Figure 19:
Distribution of Perception of Health Category Compared to Risk Category for Completed HRAs
 101,565 Records

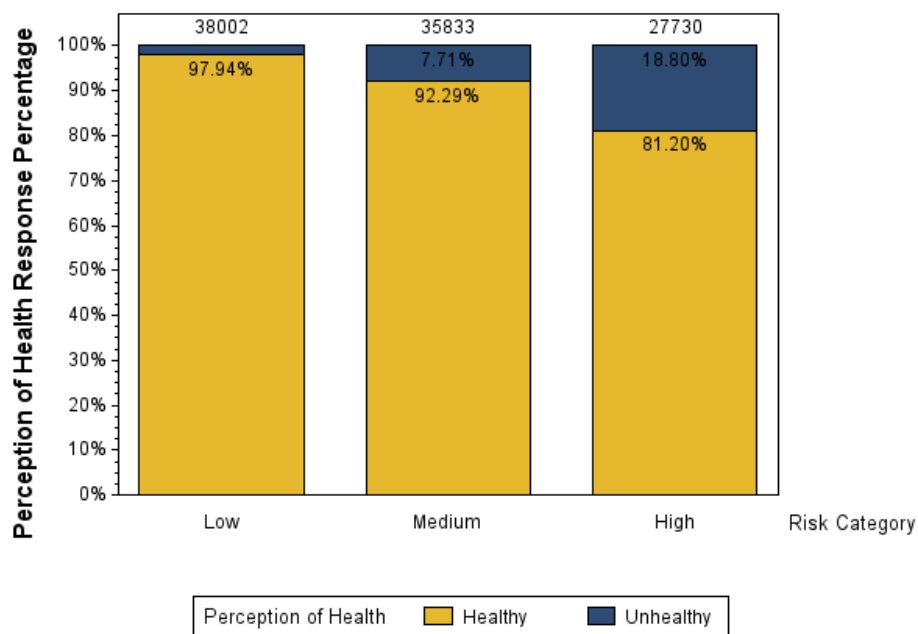


Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



The differences in perception of health and risk category were small but consistent, with lower risk groups having a higher perception of good health (97.9%) than the other two categories (Figure 20). However, high-risk individuals (81.2%) also perceived their health as excellent or good.

Figure 20:
Distribution of Perception of Health Category Compared to Risk Category for Completed HRAs
101,565 Records



Data Source: 2018 HRA
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Mean Risk by Demographic Variables

A risk score for each individual was tabulated based on the total number of unhealthy answers. There were a total of 10 risk categories. Risk scores were grouped into risk levels of low (0-2 risk categories), medium (3-4 risk categories), and high (5 or more risk categories). More males were classified as high risk (28.5%) than females (22.8%) (Table 2).

Table 2. Risk Category by Gender, CY 2018 HRA^a			
Gender	Percent (%) Low Risk	Percent (%) Medium Risk	Percent (%) High Risk
Female (n=20,650)	41.5	35.8	22.8
Male (n=80,195)	36.4	35.2	28.5

^a May not exactly total 100% due to rounding error.
 Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019

Age was also examined by risk category (Table 3). As age increased, the percentage of respondents in the low risk category increased.

Table 3. Risk Category by Age, CY 2018 HRA^a			
Age Group (Years)	Percent (%) Low Risk	Percent (%) Medium Risk	Percent (%) High Risk
17-19 (n=4,339)	31.2	38.3	30.5
20-29 (n=53,330)	32.4	35.2	32.4
30-39 (n=31,255)	41.6	35.7	22.7
40-49 (n=10,554)	47.8	34.7	17.5
50+ (n=2,087)	63.2	28.6	8.3

^a May not exactly total 100% due to rounding error.
 Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



The same association between age and percentage of high risk members was demonstrated by comparing rank with risk categories (Table 4). The E1-E5 group, which is generally comprised of younger service members, had a greater percentage of members in the high risk category compared to E6-E9 and officer ranks. Senior officers (O6-O9) had the lowest percentage of members in the high risk category.

Table 4. Risk Category by Rank, CY 2018 HRA^a

Rank Group ^b	Percent (%) Low Risk	Percent (%) Medium Risk	Percent (%) High Risk
E1-E5 (n=58,404)	32.0	35.4	32.6
E6-E9 (n=24,451)	38.7	36.2	25.1
O1-O5 (n=16,756)	52.5	33.8	13.7
O6-O9 (n=973)	64.1	29.0	6.9
W1-W5 (n=981)	46.5	36.0	17.5

^a May not exactly total 100% due to rounding error.

^b Excludes individuals who indicated a rank of E10 or O10.

Data Source: 2018 HRA

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center
 on 15 March 2019

Race was also examined by risk category (Table 5). African Americans had the highest proportion of respondents in the high risk category (30.9%), while Caucasians had the lowest proportion (25.2%). Of note, 3,825 service members chose “prefer not to answer” for the race question on the HRA survey.

Table 5. Risk Category by Race, CY 2018 HRA^a

Race Group ^b	Percent (%) Low Risk	Percent (%) Medium Risk	Percent (%) High Risk
African American (n=13,608)	31.9	37.1	30.9
Caucasian (n=57,328)	40.0	34.8	25.2
Asian/Pacific Islander (n=7,396)	33.4	36.1	30.6
Hispanic (n=15,026)	35.4	36.0	28.6
Other (n=4,447)	35.5	33.8	30.7

^a May not exactly total 100% due to rounding error.

^b 3,825 Service members did not indicate race

Data Source: 2018 HRA

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 on 15 March 2019



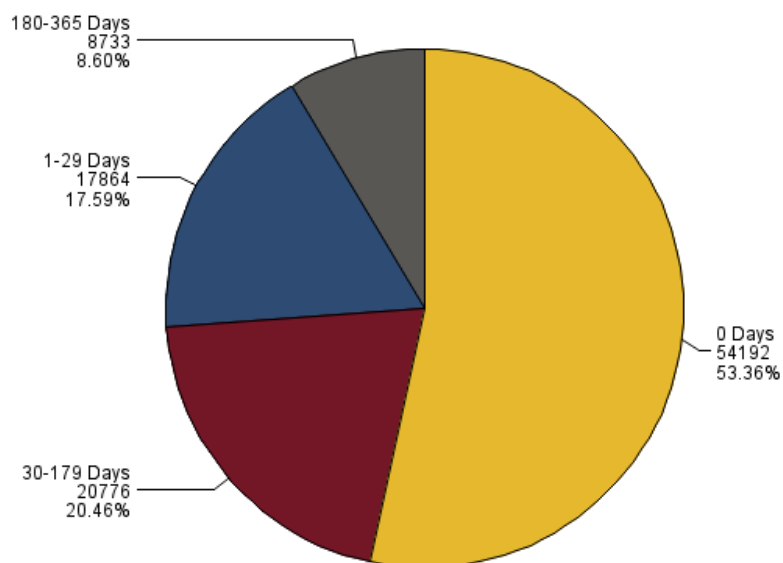
Days Away From Home Station

The relationship between days away from home station and unhealthy behavior response was examined for the HRA.

Among all survey respondents, 53.4% of individuals reported not spending any time away from their home station, 17.6% spent 1-29 days away, 20.5% spent 30-179 days away, and 8.6% spent 180-365 days away from their home station (Figure 21).

Figure 21:

Days Spent Away from Home Station 101,565 Records



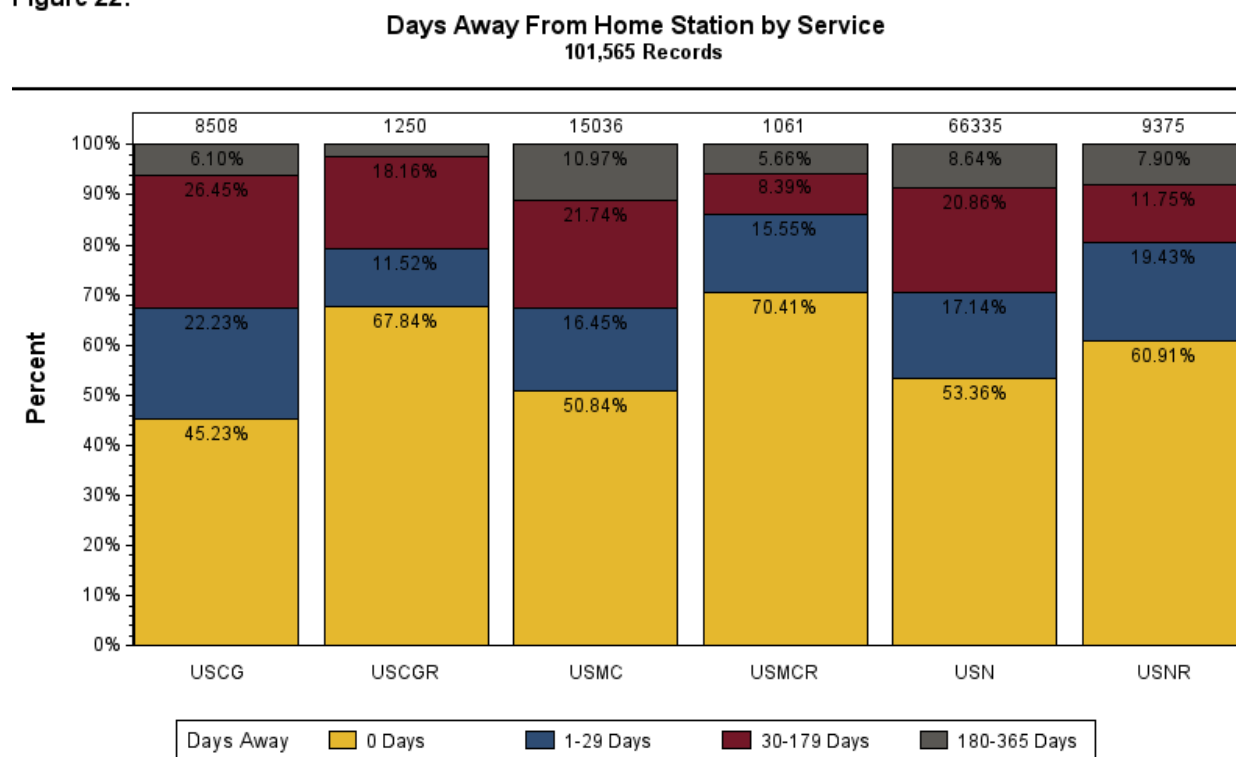
Data Source: 2018 HRA

Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Time away from home station was examined by service component (Figure 22). 53.4% and 60.9% of all USN and USNR members reported zero days away from home station, respectively. Among reservists, 60.9-70.4% of all reserve branches reported spending zero days away from home station. The USCG and USMC had the highest percentages of total days away with 54.8% and 49.2% of members reporting at least one day away from home station, respectively. USMC members reported having the greatest percentage of members away from their home station for 180-365 days (11.0%), while only 2.5% of USCGR members reported being away from their home station for 180-365 days.

Figure 22:

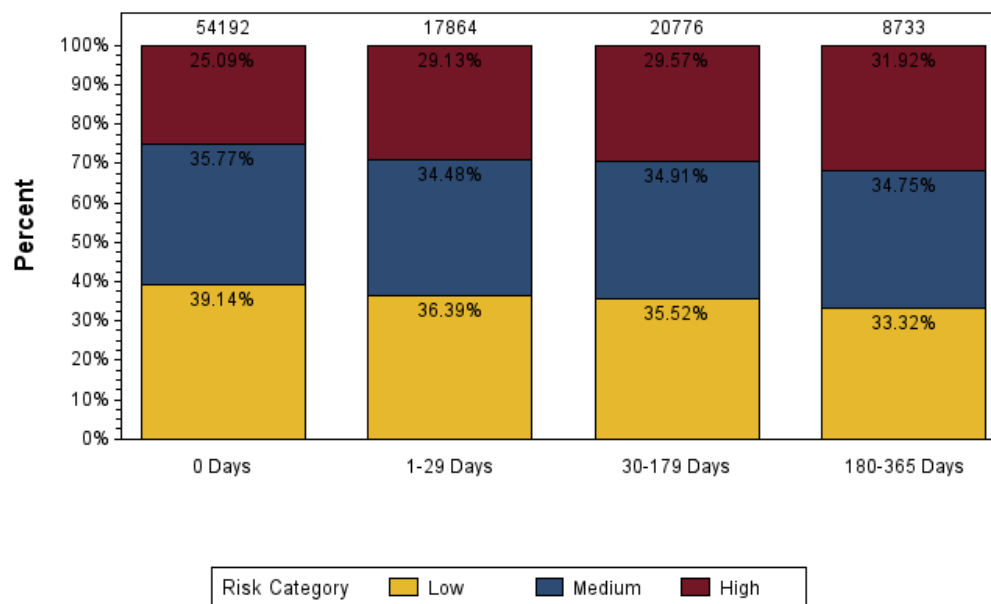


Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Total HRA risk score was examined in relation to the four “Days Away from Home Station” categories using frequency distribution and logistic regression. All service members classified as a ‘medium’ risk were within two percent across all days away time periods. Both the ‘low’ risk and ‘high’ risk categories changed with longer time away from home station. The percent of members in the ‘low’ risk category decreased from 39.1% at 0 days away to 33.3% at 180-365 days away. The percentage of members in the ‘high’ risk category increased from 25.1% at 0 days away to 31.9% at 180-365 days away (Figure 23).

Figure 23:
Distribution of Risk Categories for Completed HRAs for Days Away from Home Station
 101,565 Records



Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Days Away From Home Station and Risk Score

To evaluate the relationship between length of days away from home station and risk score, a logistic regression model was used (Table 6). The odds of having a medium or high risk category classification for service members away from home station for 30-179 days was significantly higher than for those service members away from home for 0 days (OR 1.17, 95% CI 1.13-1.21). Service members away for 180-365 days also had significantly higher odds of being in the medium or high risk category compared to those away from home 0 days (OR 1.29, 95% CI 1.23-1.35).

Table 6. Relationship Between Days Away from Home Station and Risk Scores, CY 2018 HRA

Days Away from Home Station	Odds Ratio (95% CI)	p-value
0 Days (n=54,192)	1 (Reference)	Reference
1-29 Days (n=17,864)	1.12 (1.09-1.16)	<0.001
30-179 Days (n=20,776)	1.17 (1.13-1.21)	<0.001
180-365 Days (n=8,733)	1.29 (1.23-1.35)	<0.001

Data Source: 2018 HRA

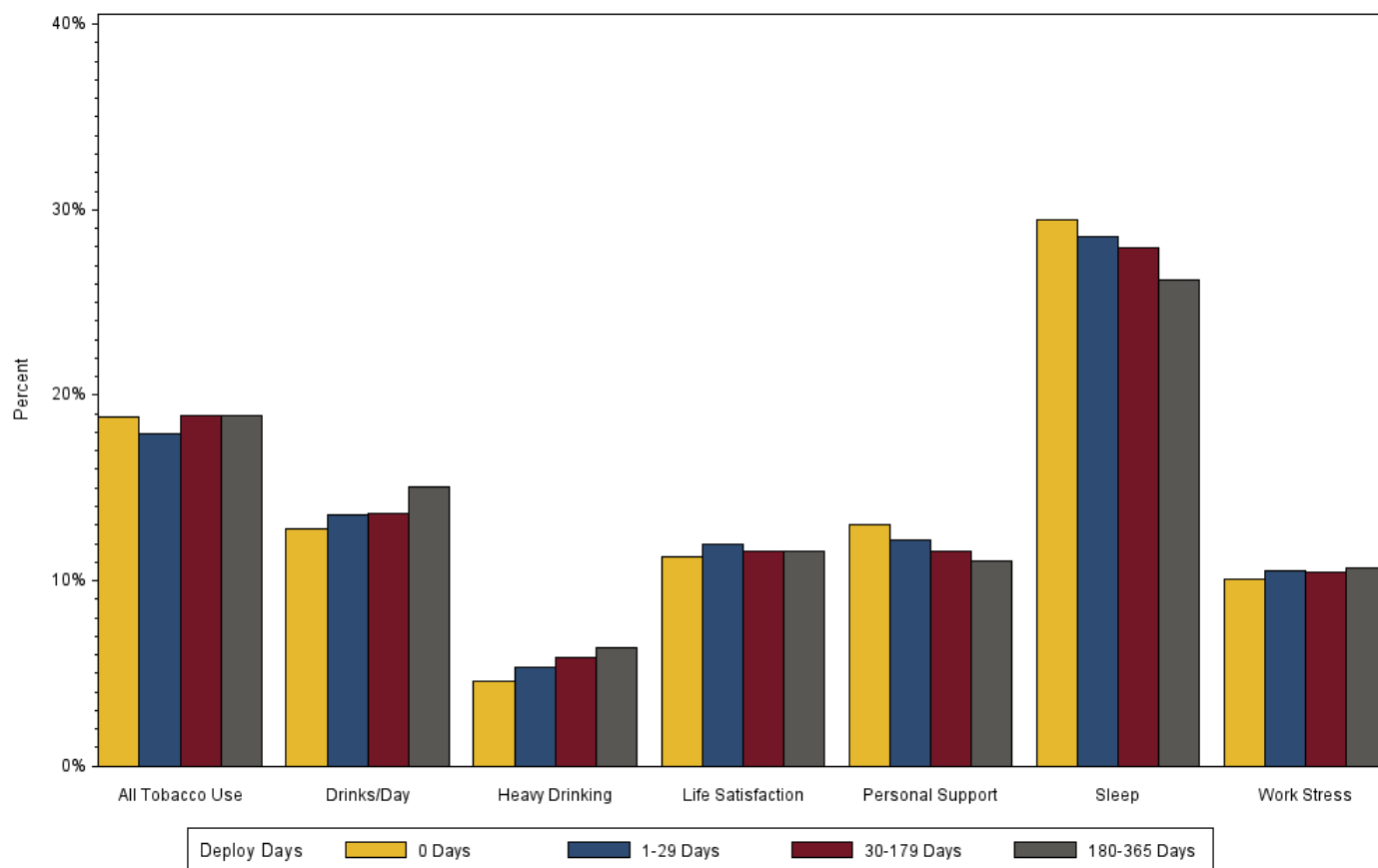
Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center
 on 15 March 2019



Days Away from Home Station and Unhealthy Behaviors

The next seven graphs (Figures 24-30) display the results of ‘unhealthy’ responses by self-reported time away from home station. Self-reported unhealthy behaviors for drinks per day and heavy drinking increased as time away from station increased for all service components combined. However, life satisfaction, work stress, and tobacco use remained unchanged, while unhealthy sleep behaviors and lack of perceived personal support decreased as time away from home station increased.

Figure 24:
 Distribution of Unhealthy Behaviors by Time Away from Home Station (All Service Components)



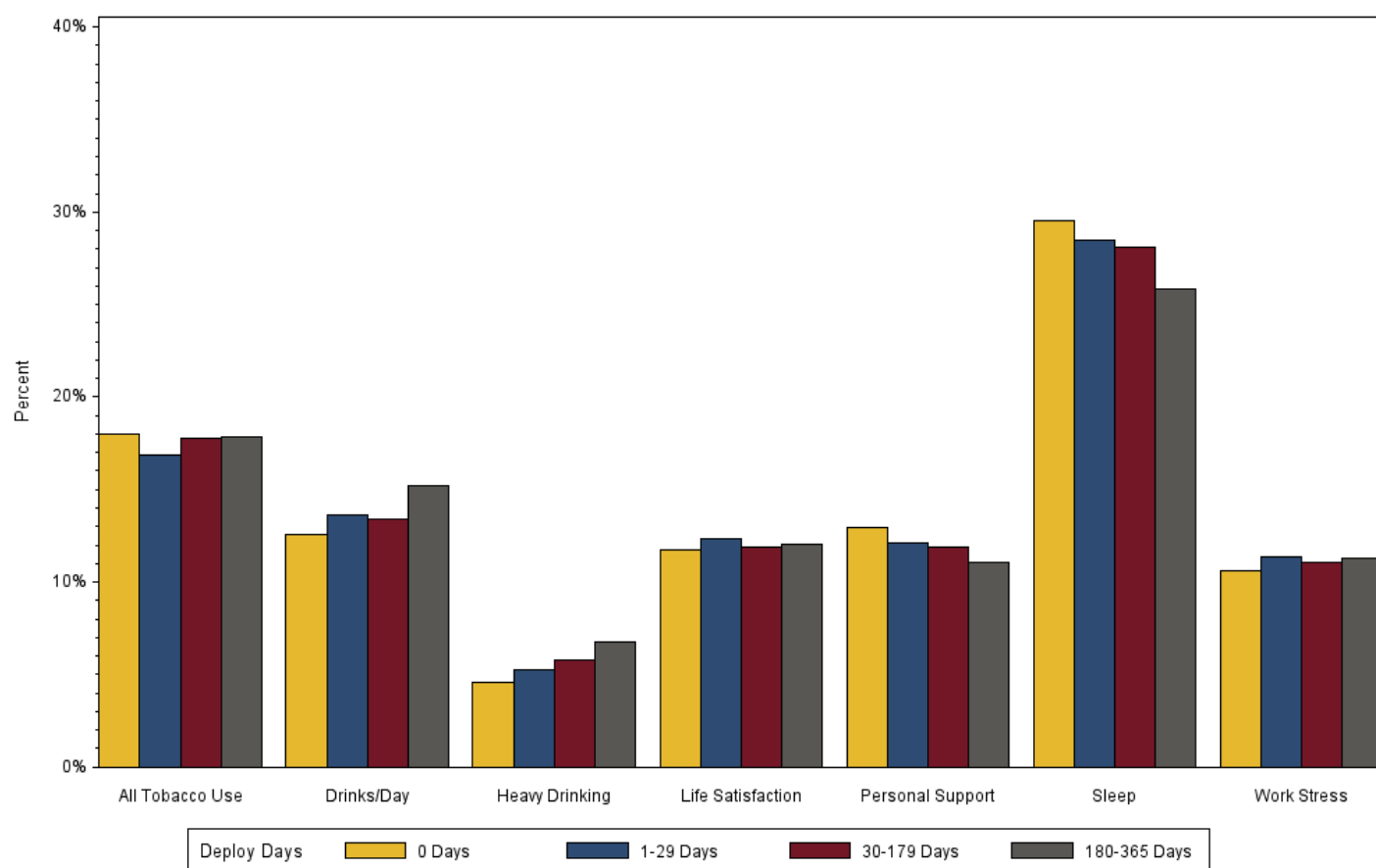
Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Frequency of ‘unhealthy’ responses stayed relatively stable for all tobacco use, life satisfaction and work stress as days away from home station increased (Figure 25), while personal support and sleep saw decreased unhealthy behaviors as days away from home station increased. Self-reported unhealthy drinks per day and heavy drinking behaviors increased as days away from home station increased. Self-reported behaviors were relatively similar between USN and USNR members for life satisfaction and sleep.

Figure 25:

USN Distribution of 'Unhealthy' Behaviors by Time Away from Home Station



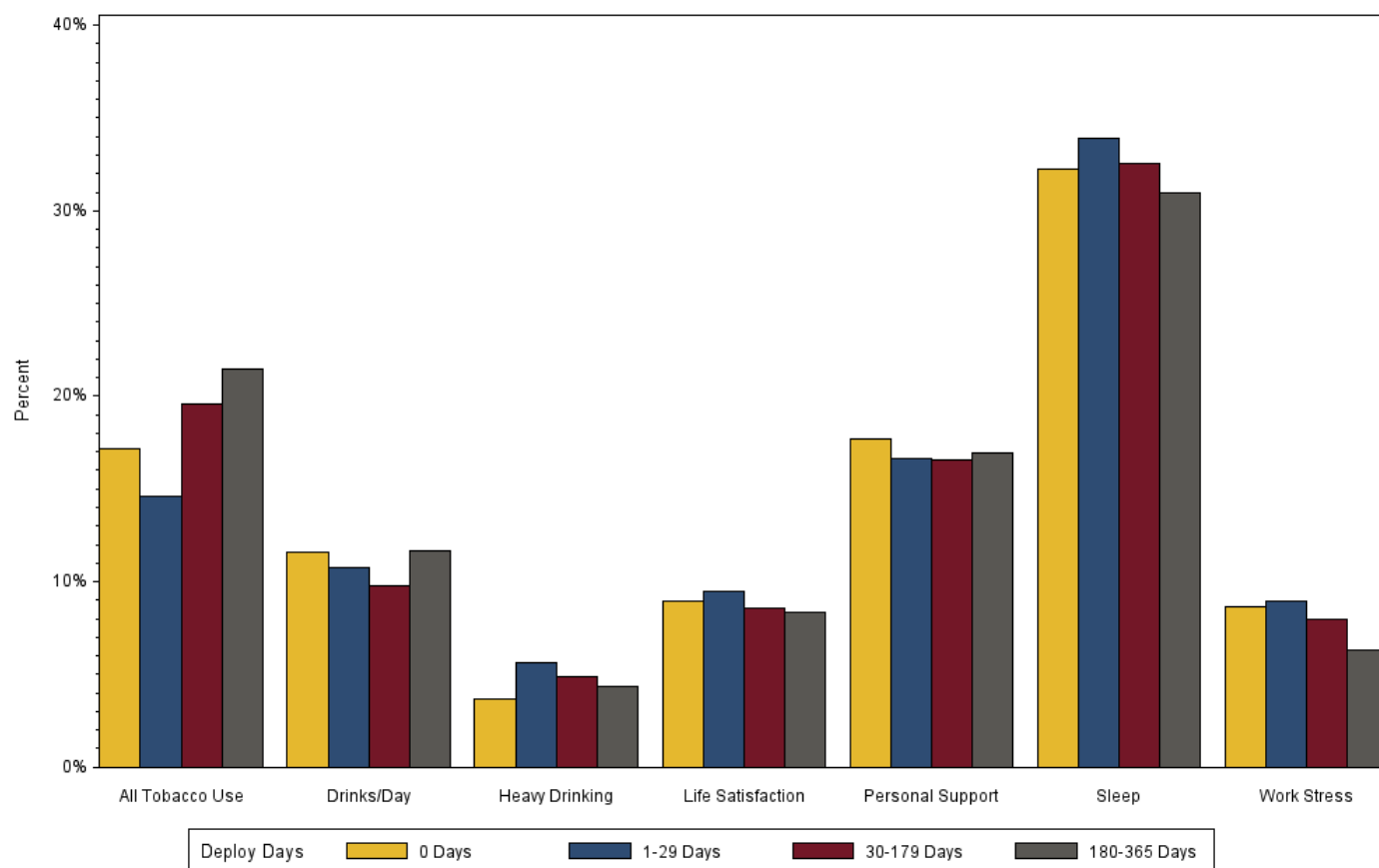
Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Frequency of ‘unhealthy’ responses stayed relatively stable for drinks per day and personal support for USNR members as days away from home station increased (Figures 26), while work stress and sleep saw a general decrease in unhealthy responses. Tobacco use saw a general increase in unhealthy responses as time away from home station increased.

Figure 26:

USNR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station



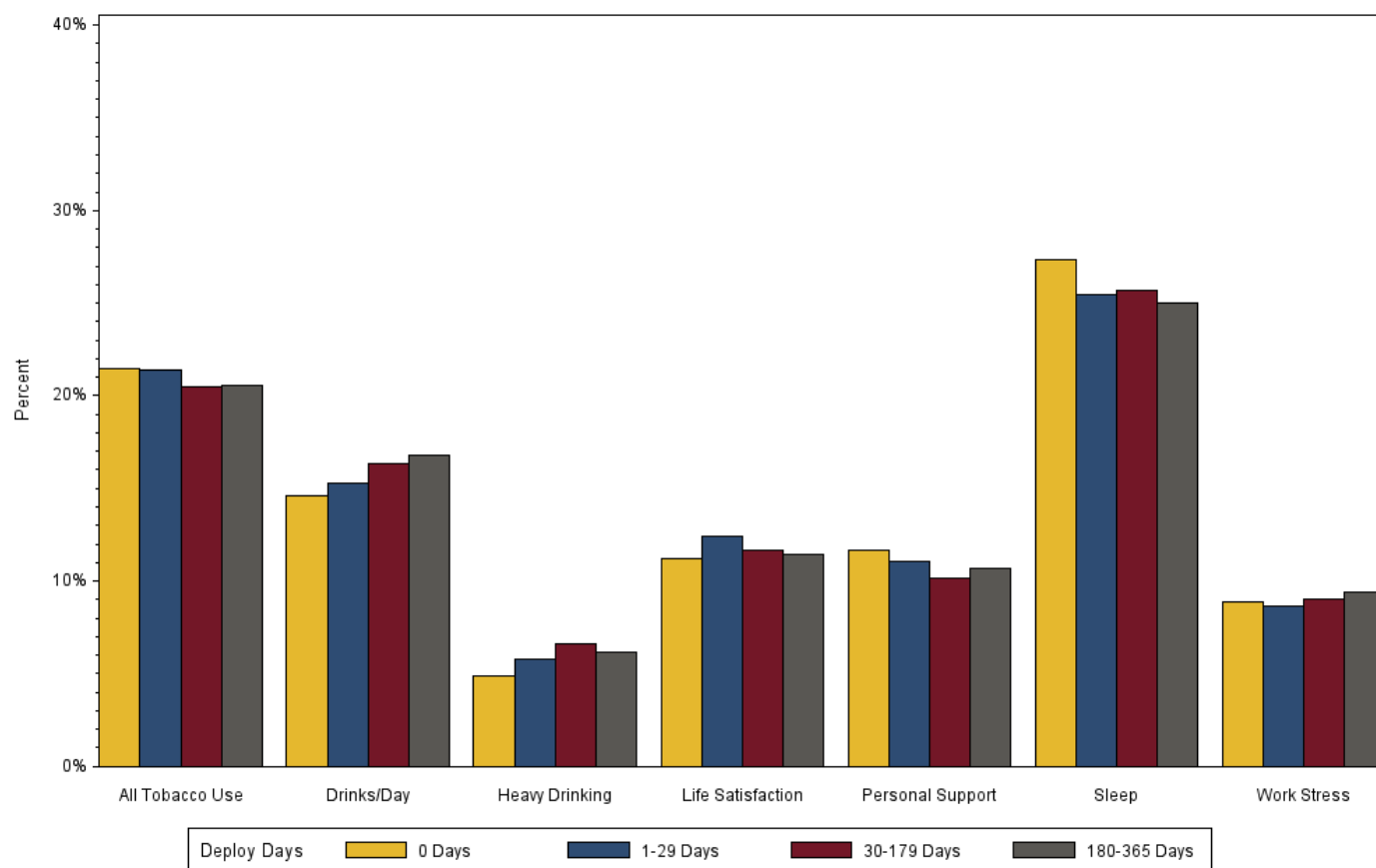
Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Compared to Navy and Coast Guard members, Marines reported higher percentages of drinks per day, which increased as days away from home station increased, but generally decreased for USMCR members (Figures 27 and 28). Frequency of ‘unhealthy’ responses increased or stayed relatively stable for all risk factors for USMC members as days away from home station increased, with the exception of tobacco use, personal support, and sleep (Figure 27).

Figure 27:

USMC Distribution of 'Unhealthy' Behaviors by Time Away from Home Station



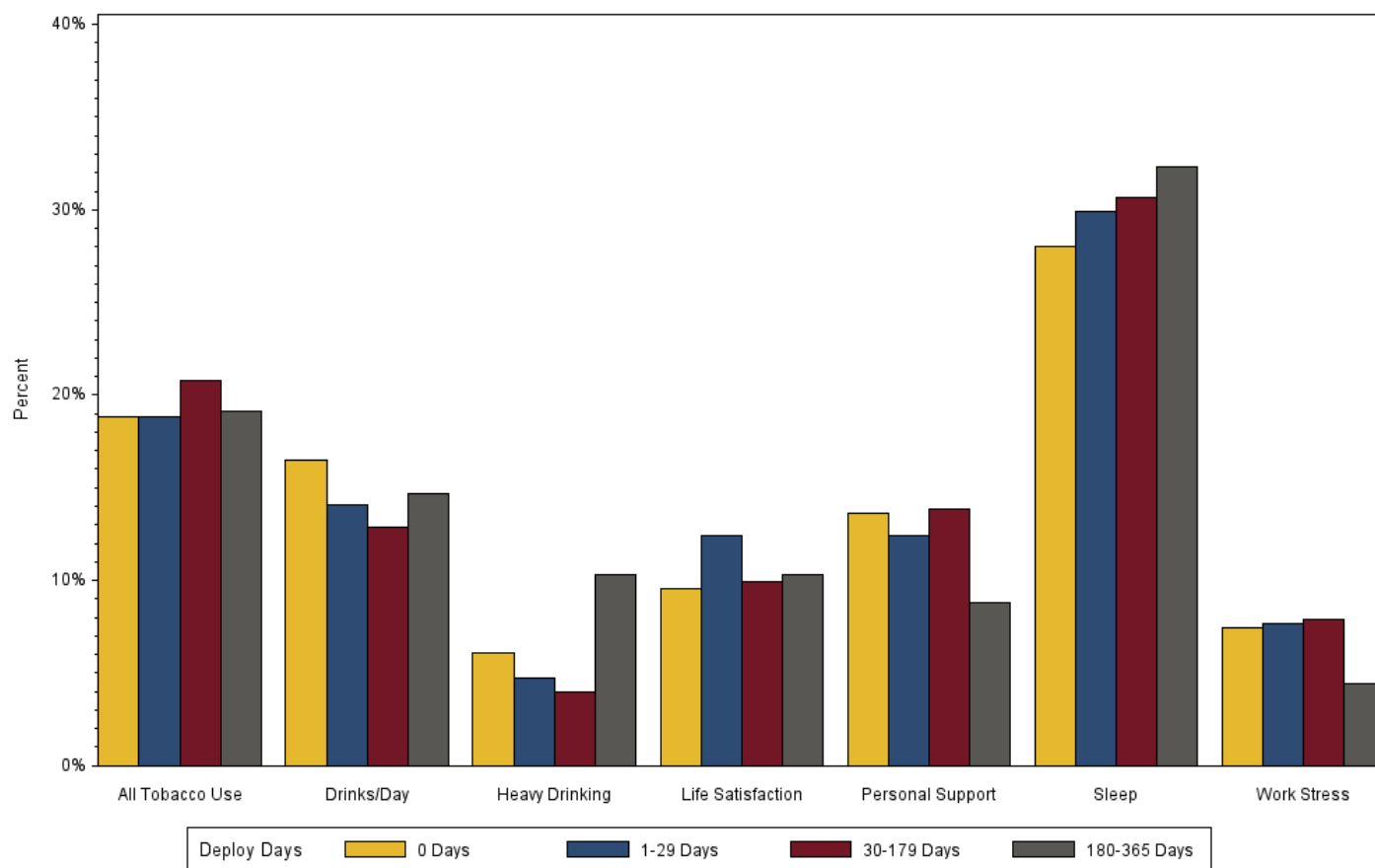
Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Frequency of ‘unhealthy’ responses increased for sleep as days away from home station increased (Figure 28). Heavy drinking decreased as USMCR members’ days away from home station until 180-365 days, when the frequency of heavy drinking increased. Tobacco use, drinks per day, life satisfaction, personal support, and work stress stayed relatively stable or decreased as days away from home station increased.

Figure 28:

USMCR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station



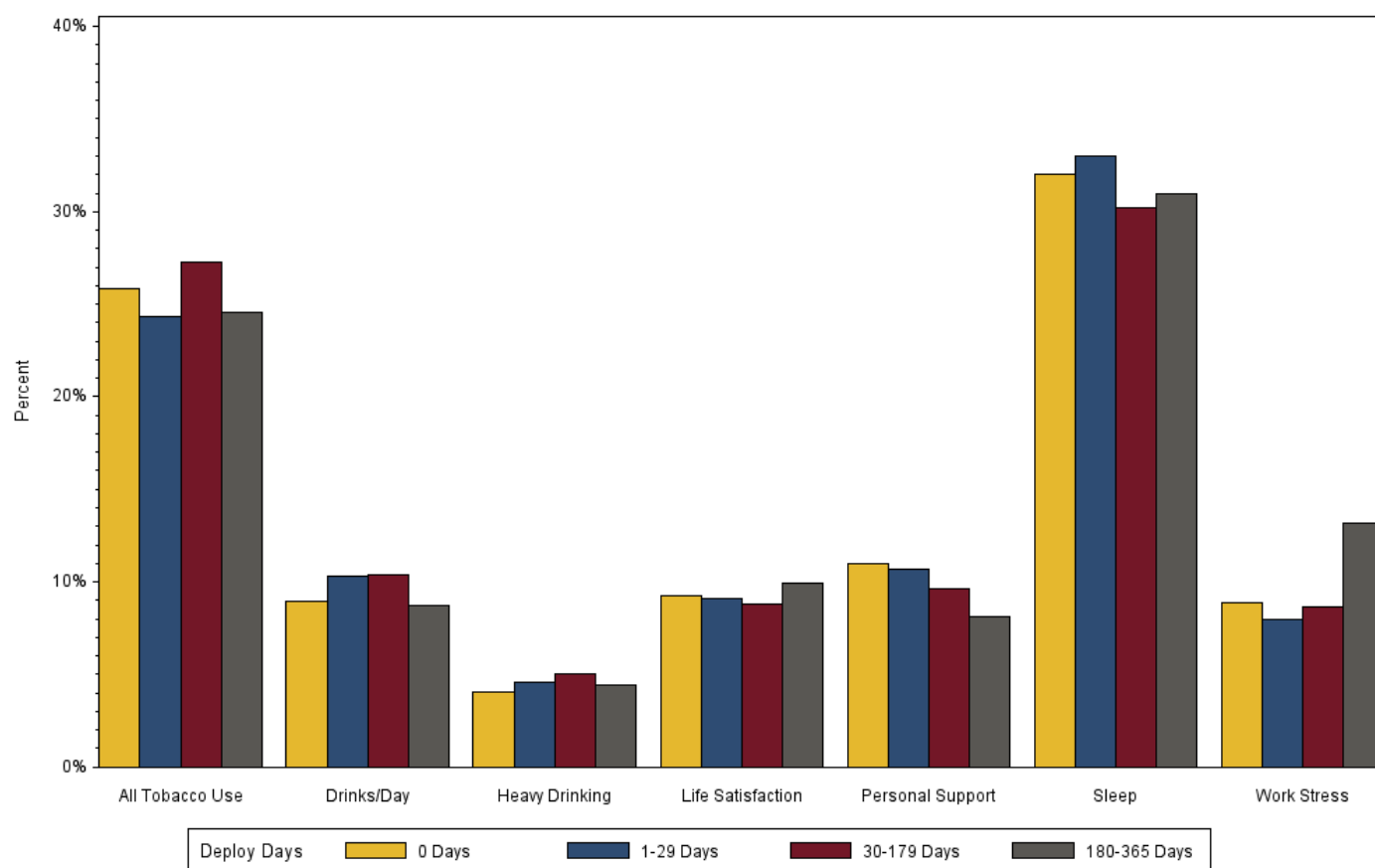
Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



USCG members reported similar proportions of ‘unhealthy’ behavior for drinks per day, heavy drinking, and life satisfaction as days away from home station increased (Figure 29). Unhealthy personal support behaviors decreased as days away from home station increased, while work stress increased for members away from home station 180-365 days.

Figure 29:

USCG Distribution of 'Unhealthy' Behaviors by Time Away from Home Station



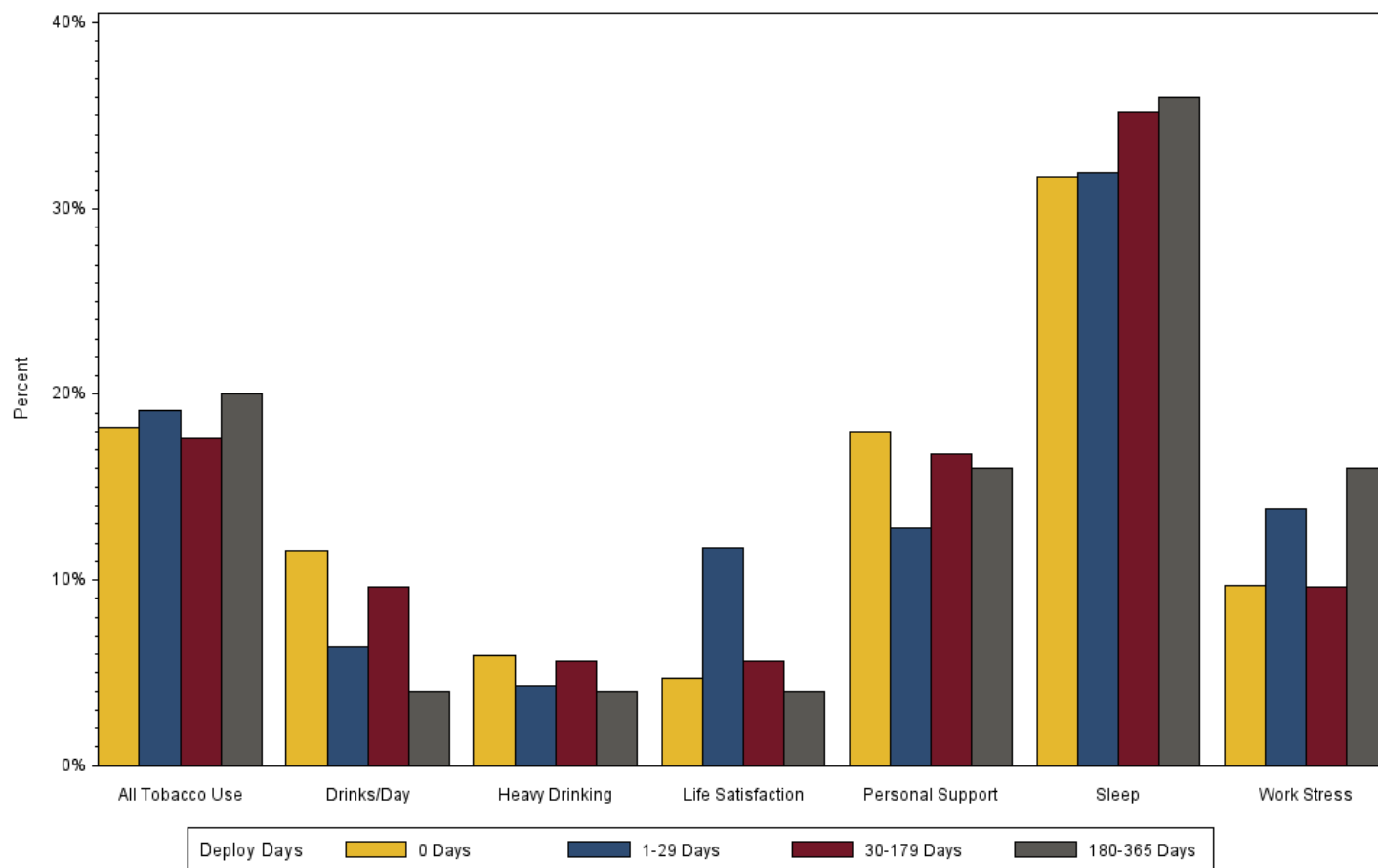
Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



For USCGR members, proportions of ‘unhealthy’ behavior for drinks per day, life satisfaction, and personal support generally decreased as days away from home station increased (Figure 30), while tobacco use fluctuated between 18%-20%. Meanwhile, unhealthy sleep and work stress behaviors increased for USCGR members as days away from home station increased.

Figure 30:

USCGR Distribution of 'Unhealthy' Behaviors by Time Away from Home Station



Data Source: 2018 HRA
 Prepared by the EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019



Discussion

Strengths and Limitations

Anonymity is a key strength of the HRA survey, making it more likely that participants will answer honestly about risky behaviors in which they engage. Taking the assessment is a matter of a commands' voluntary implementation of the HRA process, in addition to the fact that completing the questionnaire is voluntary for every individual.

Self-reported data can be biased due to participant recall or by social desirability bias. As such, some overestimation of positive behaviors and underestimation of negative behaviors may occur. It is possible for an individual to complete the questionnaire multiple times, as there is no way to block or detect duplicate entries, although there is little individual incentive to do this. It is also difficult to directly compare service components because the demographic characteristics that influence health behavior, as described earlier, vary significantly. Records collected by commands using the non-web-based stand-alone version may not have all been sent to NMCPHC and, consequently, were not included in the master data set.

Demographics

The use of the tool declined across all service components in 2018 compared to 2017. There were 38,872 fewer USN respondents, 15,973 fewer USMC respondents, 3,479 fewer USCGR respondents, 16,256 fewer USNR respondents, 1,250 USMCR fewer respondents, and 3,189 fewer USCG respondents in 2018 than 2017.

When interpreting the results, it is important to use caution when comparing groups that are dissimilar. For example, the Marine Corps is comprised of significantly younger members whose mission and environment may affect the results. It would be expected that younger members would report different types and levels of risk behaviors compared to older members. Similar differences in results could be attributed to gender differences. Although specific risk behaviors were not analyzed in this report by age or gender, the total number of risk behaviors, the risk number category, was examined for both of these variables. Not surprisingly, increasing age was inversely associated with the percentage of individuals who fell into the medium and high risk number category. In addition, female members had a lower mean number of self-report risky behaviors (3.1) than male members (3.4).

The decreasing percentage of members in the high risk category after the age of 29 may be due to survivor effect or healthy worker effect, indicating that those who remain in the military tend to



be healthier than those who leave the service. It may also be that some individuals reduce their risky lifestyle behaviors as they mature.

Risk Factors

The tool uses Body Mass Index (BMI), which is a fairly reliable indicator of body fatness for most people. BMI is based on self-reported height and weight and is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems.¹ Military height-weight tables use this approach but are more lenient for establishing official standards. BMI can also overestimate body fat in lean, muscular individuals. Therefore, these data should not necessarily lead to the conclusion that all individuals exceeding healthy levels are either overweight or obese. Rather, the data may support some general observations about weight across the services.

Days Away From Home

The largest number of individuals who completed the HRA did not deploy at all last year (53.0%). When added to the number of members who were away from home for fewer than 30 days, the total percentage was approximately 71%. USCG members away from home for more days than members of other service components. As stated earlier, as time away from home station increased, the mean risk and the proportion of members in the high risk category increased. Therefore, implementing health promotion activities may be even more important in populations that experience separations.

Conclusion

When compared to previous surveys, the prevalence of specific risk factors has remained fairly constant, with the leading health risks being low fruit and vegetable consumption, high fat food consumption, not flossing teeth, and lack of restful sleep. These results should be used to plan health promotion interventions that target priority areas. Although comparing individual service results to the total of all services may be tempting, it may be more appropriate to seek realistic and incremental percentage improvements when setting goals for the future.

The NMCPHC Workplace HRA can be a valuable tool for tailoring health messages to individuals. Participant feedback and referral to credible health websites for more detailed information provides participants with the knowledge and skills to better manage their personal health.

From a more global, population health approach, the aggregate data in this HRA report provides each of the service components with valuable information that can be incorporated into comprehensive workplace or community health assessments, which is a first step in planning



effective health promotion programs. Local HRA administrators have the ability to generate additional reports in even greater detail at the individual unit level.

Decision-makers can use the data in this report for strategic planning. The results of this report can have a bearing on recruitment, retention, readiness, and quality of military life.

Reference

1. Centers for Disease Control and Prevention BMI Web Site. Available at: https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/#Interpreted. Accessed April 24, 2017.



POINT OF CONTACT

Navy and Marine Corps Public Health Center
Exposure and Injury Analysis Division
EpiData Center Department
<http://go.usa.gov/7dHP>

Anna Carroll, MPH
757.953.0753
anna.m.carroll12.civ@mail.mil



Appendix A: 2018 NMCPHC Workplace Health Risk Assessment (HRA)

2018 NMCPHC WORKPLACE HEALTH RISK ASSESSMENT (HRA)		
Question Number	Question Text	Answers
	Age:	17-99
	Height:	3'0"-8'11"
	Weight:	70-499
	Ethnicity:	Caucasian
		African-American
		Hispanic
		Asian/Pacific Islander
		Native Alaskan
		American Indian
		Other
		Prefer not to answer
	Service:	USN
		USNR
		USMC
		USMCR
		USA
		USAR
		USAF
		USAFR
		USCG
		USCGR
		DoD



	Rank:	E1
		E2
		E3
		E4
		E5
		E6
		E7
		E8
		E9
		O1
		O2
		O3
		O4
		O5
		O6
		O7
		O8
		O9
		O10
		W1
		W2
		W3
		W4
		W5
Civ-GS		
Other		
	Gender:	Male
		Female
	Days away from home station last 12 months:	0-365
Q1	Would you say that your health in general is?	Excellent
		Good
		Fair
		Poor
Q2a	Do you currently use or have you ever used tobacco products such as cigarettes, smokeless tobacco, electronic cigarettes or vape, hookah, or cigars?	Yes
		No
Q2b Header	Please check all the tobacco products that you use/have used and how often.	
Q2b	Cigarettes	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never
	Smokeless tobacco (e.g. chew, dip, spit, snuff, snus)	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never
	Cigars/Cigarillos	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never



	Pipe Tobacco	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never
	Electronic Cigarettes, Electronic Pipes, Electronic Hookah, Vape Pens, or similar device.	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never
	Dissolvables (e.g. lozenges, orbs/pellets, sticks, strips)	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never
	Hookah	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never
	Other Tobacco Product Not Listed.	Every Day
		Most Days
		Some Days
		I quit during the past 12 months
		I quit over 12 months ago
		Never
Q2c Cigarettes	What was your primary reason for quitting cigarettes?	Costs
		It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use)
		There are fewer tobacco users around me
		Leadership and/or friends encouraged me to quit
		My health
		Health of my family/those around me
Q2c Smokeless	What was your primary reason for quitting smokeless tobacco?	Costs
		It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use)
		There are fewer tobacco users around me
		Leadership and/or friends encouraged me to quit
		My health
		Health of my family/those around me
Q2c Cigars/Cigarillos	What was your primary reason for quitting cigars/cigarillos?	Costs
		It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use)
		There are fewer tobacco users around me
		Leadership and/or friends encouraged me to quit
		My health
		Health of my family/those around me



Q2c Pipe Tobacco	What was your primary reason for quitting pipe tobacco?	Costs It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use) There are fewer tobacco users around me Leadership and/or friends encouraged me to quit My health Health of my family/those around me
Q2c Electronic	What was your primary reason for quitting electronic cigarettes, electronic pipes, electronic hookah, vape pens, or similar devices?	Costs It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use) There are fewer tobacco users around me Leadership and/or friends encouraged me to quit My health Health of my family/those around me
Q2c Dissolvables	What was your primary reason for quitting dissolvables?	Costs It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use) There are fewer tobacco users around me Leadership and/or friends encouraged me to quit My health Health of my family/those around me
Q2c Hookah	What was your primary reason for quitting hookah?	Costs It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use) There are fewer tobacco users around me Leadership and/or friends encouraged me to quit My health Health of my family/those around me
Q2c Other	What was your primary reason for quitting other tobacco products?	Costs It is harder to use tobacco at my command (e.g. taking breaks, locations where I can use) There are fewer tobacco users around me Leadership and/or friends encouraged me to quit My health Health of my family/those around me
Q3	Do you consume more than 4 alcoholic drinks on any day or 14 alcoholic drinks per week (for men), or more than 3 alcoholic drinks on any day or 7 alcoholic drinks per week (for women)?	Yes No
Q4	How often do you typically drink five or more alcoholic drinks on one occasion ("One occasion" refers to an event or period, when drinking exceeds one drink per hour)?	Daily Weekly Monthly Once or twice per year Never
Q5	How often do you drive when perhaps you've had too much to drink, or been a passenger when the driver has had too much to drink?	Often (i.e., more than once during the past 6 months) Sometimes (i.e., once during the past 6 months) Rarely (i.e., not in the past 6 months, but at least once during the past year) Never (i.e., not during the past year)
Q6	How often do you use a seat belt when you drive or ride as a passenger?	Always Sometimes Rarely Never
Q7	How often do you wear a helmet when you ride a motorcycle, all-terrain vehicle, or bicycle?	Always Sometimes Rarely Never Does not apply to me/ I do not ride these vehicles



Q8	How often do you use the safety equipment recommended for your job (e.g., hearing and vision protection, respirators, barriers, and other safety devices)?	Always Sometimes Rarely Never Does not apply to me/ I do not ride these vehicles
Q9	In general, how satisfied are you with your life (e.g., work situation, social activity, relationships, accomplishing what you set out to do)?	Very satisfied Mostly satisfied Somewhat satisfied Not satisfied
Q10	How often do you feel that your work or personal situation is putting you under too much stress?	Always Most of the time Sometimes Rarely Never
Q11	If you're feeling lonely, depressed, angry, stressed, or in need of help, do you have someone to talk to?	Not applicable Always Most of the time Sometimes Rarely Never
Q12	In the past 12 months, how often did you or your partner(s) use a condom when you had sex (Read all choices below carefully before responding)?	Does not apply to me because I am in a long-term relationship where we only have sex with each other -OR- does not apply to me for other reasons. Currently I am not sexually active Always Most of the time Sometimes Rarely or Never
Q13	On average, how many weeks per month do you engage in a total of at least 150 minutes of moderate-intensity aerobic activity (moderate-intensity physical activity means working hard enough to raise your heart rate and break a sweat, yet still being able to carry on a conversation. i.e., brisk walking, swimming leisurely, or leisurely biking) OR at least 75 minutes of vigorous-intensity aerobic activity (vigorous-intensity means you will not be able to say more than a few words without pausing for a breath, i.e., jogging/running, swimming laps, or jumping rope)?	4 weeks per month 3 weeks per month 2 weeks per month 1 week per month I do not participate in aerobic training
Q14	On average, how many days per week do you engage in muscle-strengthening activities that work all muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms)?	4 or more days a week 3 or more days a week 2 or more days a week 1 day a week I do not participate in strength training
Q15	How often do you usually eat high-fat foods (e.g., fried foods; high-fat dairy products such as butter, cheese, or whole milk; regular salad dressing or mayonnaise; or packaged foods high in fats)?	At most or every meal At least once a day 3-5 times per week 1-2 times per week Rarely or Never
Q16	About how many cups of fruit do you eat each day? (One cup fruit=one small piece of fruit, one cup of cut-up fruit, one cup of 100% fruit juice, or 1/2 cup of dried fruit)	Four or more Three Two One Less than one
Q17	How often do you use over the counter (OTC) drugs, dietary supplements, or herbal products to help you manage your weight, enhance athletic performance, or treat depression?	Daily Weekly Monthly Seldom Never



Q18	How frequently do you floss your teeth?	Daily
		Most Days
		Sometimes
		Rarely
		Never
Q19	About how many cups of vegetables do you eat each day? (one cup of vegetables= one cup of raw or cooked vegetables, 1 cup of 100% vegetable juice, or 2 cups of raw leafy greens)	Four or more
		Three
		Two
		One
		Less than one
Q20	How often do you get enough restful sleep to function well in your job?	Always
		Most of the time
		Sometimes
		Rarely
		Never
Q21	For both men and women, pregnancy is a life-changing event for mother and father. Regarding your actions related to possible pregnancy:	I am not having sexual intercourse at this time in my life.
		My current partner and I cannot become pregnant
		My partner or I are pregnant, we are trying to have a baby now, or we would welcome a pregnancy if it occurred now
		My partner or I are correctly and consistently using birth control ALL the time
		My partner or I are correctly and consistently using birth control MOST the time
		My partner or I are correctly and consistently using birth control SOME the time
		My partner and I are not using birth control



Appendix B: Commissioned Officer (CO) Report Scoring Grid

Appendix B. CO Report Scoring Grid CY 2018 HRA^a

Health Indicator	Health Behavior	Unhealthy Rating	Healthy Rating
Perception ^a	1. Perception of health	c-d	a-b
Tobacco Use	2b. Cigarettes	a-c	d-f
	Smokeless Tobacco	a-c	d-f
	Cigars/Cigarillos	a-c	d-f
	Pipe Tobacco	a-c	d-f
	Electronic Products/Vaping	a-c	d-f
	Dissolvables	a-c	d-f
	Hookah	a-c	d-f
	Other Tobacco Products	a-c	d-f
Alcohol Use	3. Drinks Per Day	a	b
	4. Heavy Drinking	a-c	d-e
	5. Drinking and Driving	a-c	d
Injury Prevention	6. Seat Belt	b-d	a
	7. Vehicle Helmets	b-d	a, e
	8. Safety Equipment	b-d	a, e
Stress Management	9. Life Satisfaction	c-d	a-b
	10. Work Stress	a-b	c-e
	11. Personal Support	d-f	a-c
Sexual Health	12. Condom Use	d-f	a-c
	21. Pregnancy Prevention	e-g	a-d
Physical Activity	13. Aerobic Activity	c-e	a-b
	14. Strength Training	d-e	a-c
Nutrition	15. High Fat Foods	a-c	d-e
	16. Fruits	d-e	a-c
	19. Vegetables	c-e	a-b
Supplements	17. Supplements	a-c	d-e
Dental	18. Flossing	c-e	a-b
Sleep	20. Sleep	c-e	a-b
BMI ^a		BMI>25	BMI <25

^aNot one of the 10 categories used to determine low, medium, or high risk

Data Source: 2018 Health Risk Assessment (HRA)

Prepared by EpiData Center Department, Navy and Marine Corps Public Health Center on 15 March 2019

